ECLA   EUROPEAN CLASSIFICATION

G06K   **RECOGNITION OF DATA; PRESENTATION OF DATA; RECORD CARRIERS; HANDLING RECORD CARRIERS**

Note

1.   This subclass covers:

   - marking, sensing, and conveying of record carriers;
   - recognising characters or other data;
   - presenting visually or otherwise the data recognised or the result of a computation.

2.   This subclass does not cover printing per se.

G06K1/00   **Methods or arrangements for marking the record carrier in digital fashion** (interpreting G06K3/02)

G06K1/02	. by punching (punching in general B26F)
G06K1/02B	. . [N: Details, e.g. construction of the punching mecanism]
G06K1/04	. . controlled by sensing markings on the record carrier being punched (sensing of record carriers G06K7/00)
G06K1/05	. . High-speed punches, e.g. controlled by electric computer
G06K1/06	. . Manually-controlled device
G06K1/08	. . . Card punches
G06K1/10	. . . Tape punches (specially adapted for a particular purpose, see the relevant subclass, e.g. for telegraphy H04L)
G06K1/12	. otherwise than by punching (printing in general B41, e.g. B41J)
G06K1/12B	. . [N: by printing code marks (applying code marks to labels B65C9/46; marking or coding completed packages B65B61/26)]
G06K1/12B1	. . . [N: for colour code marks]
G06K1/12C	. . [N: by magnetic means]
G06K1/12D	. . [N: by photographic or thermographic registration (recording apparatus for measuring instruments G01D15/00)]
G06K1/12E	. . [N: by electric registration, e.g. electrolytic, spark erosion (recording apparatus for measuring instruments G01D15/06; information storage in general G11)]
G06K1/14	. by transferring data from a similar or dissimilar record carrier
G06K1/16	. . by reproducing data from one punched card on to one or more punched cards without the code representation, i.e. duplicating
G06K1/18	. . by transferring data from one type of record carrier on to another type of record carrier, e.g. from magnetic tape to punched card
G06K1/20	. Simultaneous marking of record carrier and printing-out of data, e.g. printing-punch
G06K1/22	. . Simultaneous marking and printing on different record carriers, e.g. on different

types of record carrier

G06K3/00   **Methods or arrangements for printing of data in the shape of alphanumeric or other characters from a record carrier, e.g. interpreting, printing-out from a magnetic tape**

G06K3/02   . Translating markings on a record carrier into printed data on the same record carrier, i.e. interpreting

G06K5/00   **Methods or arrangements for verifying the correctness of markings on a record carrier; Column detection devices**

G06K5/02   . the verifying forming a part of the marking action

G06K5/04   . Verifying the alignment of markings

G06K7/00   **Methods or arrangements for sensing record carriers,** [N: e.g. for reading patterns] (G06K9/00 takes precedence) [C9902]

G06K7/00C   . [N: Hybrid readers] [N9708]

G06K7/00E   . [N: General problems related to the reading of electronic memory record carriers, independent of its reading method, e.g. power transfer] [C9708]

G06K7/00K   . [N: by galvanic contacts, e.g. card connectors for ISO-7816 compliant smart cards or memory cards, e.g. SD card readers (connectors in general H01R13/00; connectors for SIM cards used in mobile phones or the like H04B1/38)] [N9708] [C1202]

G06K7/00K1   . . [N: the reading head of the connector being removably attached to the housing] [N1111]

G06K7/00K2   . . [N: for reading/sensing record carriers having surface contacts] [N9708]

G06K7/00K2A   . . . [N: the galvanic contacts of the connector adapted for landing on the contacts of the card upon card insertion] [N1111]

G06K7/00K2C   . . . [N: means for pressing the connector contacts in the direction of the card contacts to assure trustworthy electrical connection between card and connector] [N1111]

G06K7/00K3   . . [N: the connector being capable of simultaneously receiving a plurality of cards in the same insertion slot] [N1111]

G06K7/00K3A   . . . [N: the plurality of cards being cards of the same type and format, e.g. two ISO 7816 smart cards] [N1111]

G06K7/00K3C   . . . [N: the plurality of cards being cards of different formats, e.g. SD card and memory stick] [N1111]

G06K7/00K4   . . [N: for reading/sensing record carriers having edge contacts] [N9708]

G06K7/00K5   . . [N: connectors capable of contacting cards of different formats, e.g. memory stick and SD card readers sharing at least one connector contact and the associated signal line, e.g. both using the same signal line for input or output of data] [N1111]

G06K7/00K7   . . [N: housing of the card connector] [N1111]

G06K7/00K7A   . . . [N: the housing being a portable casing] [N1111]

G06K7/00K7C   . . . [N: comprising keyboard or display, e.g. a pocket calculator sized casing suitable for off-line checking the remaining money on a smart banking card]

		N1111]
G06K7/00K7E	. . .	[N: including means for detecting correct insertion of the card, e.g. end detection switches notifying that the card has been inserted completely and correctly] [N1111]
G06K7/00K7G	. . .	[N: having multiple insertion slots, the respective slots suited for the same or different card form factors] [N1111]
G06K7/00K7H	. . .	[N: reinforced housing for protection against damage, be it due malevolent action, such as drilling and other ways of forced entry, or by accident, such as shock due to dropping] [N1111]
G06K7/00K7K	. . .	[N: comprising an arrangement for protection against electrostatic discharge, e.g. by grounding part of the conductive housing] [N1111]
G06K7/00K9	. .	[N: the connector comprising a circuit for steering the operations of the card connector] [N1111]
G06K7/00K9A	. . .	[N: the circuit comprising an arrangement for avoiding intrusions and unwanted access to data inside of the connector] [N1111]
G06K7/00M	.	[N: Testing the sensing arrangement, e.g. testing if a magnetic card reader, bar code reader, RFID interrogator or smart card reader functions properly (testing of electrical circuits G01R31/28)] [N1204]
G06K7/01	.	Details
G06K7/015	. .	Aligning or centering of the sensing device with respect to the record carrier (in general G11B)
G06K7/016	. .	Synchronisation of sensing process (in general G11B)
G06K7/016C	. . .	[N: by means of additional timing marks on the record-carrier] [C9708]
G06K7/016D	. . .	[N: by means of clock-signals derived from the code marks, e.g. self-clocking code] [C9708]
G06K7/02	.	by pneumatic or hydraulic means, e.g. sensing punched holes with compressed air; by sonic means; [N: by ultrasonic means] [C9708]
G06K7/04	.	by mechanical means, e.g. by pins operating electric contacts
G06K7/04B	. .	[N: controlling electric circuits]
G06K7/04B1	. . .	[N: whereby the entire datafield of the record carriers is simultaneously sensed]
G06K7/04B2	. . .	[N: whereby the data field of the record carriers is sensed successively column after column]
G06K7/06	.	by means which conduct current when a mark is sensed or absent, e.g. contact brush for a conductive mark
G06K7/06B	. .	[N: for conductive marks]
G06K7/08	.	by means detecting the change of an electrostatic or magnetic field, e.g. by detecting change of capacitance between electrodes
G06K7/08B	. .	[N: electrostatic, e.g. by detecting the charge of capacitance between electrodes]
G06K7/08C	. .	[N: using inductive or magnetic sensors]
G06K7/08C2	. . .	[N: inductive (G06K7/08C6 takes precedence)]
G06K7/08C2D	. . . .	[N: sensing magnetic material by relative movement detecting flux changes without altering its magnetised state]
G06K7/08C2M	. . . .	[N: metal detectors]
G06K7/08C2Q	. . . .	[N: sensing passive circuit, e.g. resonant circuit transponders]

G06K7/08C4 . . . [N: flux-sensitive, e.g. magnetic, detectors (G06K7/08C6 takes precedence)]

G06K7/08C4S . . . . [N: using magneto-sensitive switches, e.g. reed-switches]

G06K7/08D . . [N: hand-held scanners]

G06K7/10 . by electromagnetic radiation, e.g. optical sensing; by corpuscular radiation

G06K7/10A . . [N: sensing by radiation using wavelengths larger than 0.1 mm, e.g. radio-waves or microwaves] [C1202]

[N: **Notes**
[N1202] This group covers electromagnetic interrogation as radiated by the antenna of an interrogation device while interrogating a plurality of wireless electronic memory record carriers, e.g. non-contact smart cards, RFID tags or labels, or transponders
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G06K7/10A1 . . . [N: resolving collision on the communication channels between simultaneously or concurrently interrogated record carriers. (collision between the communication channels used by wireless communication devices, where the solution is not particularly adapted for RFIDs or the like, H04W74/08)] [N1111]

G06K7/10A1A . . . . [N: the collision being resolved in the time domain, e.g. using binary tree search or RFID responses allocated to a random time slot] [N1111]

G06K7/10A1A1 . . . . . [N: interrogator driven, i.e. synchronous] [N1111]

G06K7/10A1A1A . . . . . . [N: binary tree] [N1111]

G06K7/10A1A3 . . . . . [N: transponder driven] [N1111]

G06K7/10A1C . . . . [N: the collision being resolved in the frequency domain, e.g. by hopping from one frequency to the other (frequency hopping or spread spectrum techniques H04B7/00)] [N1111]

G06K7/10A1E . . . . [N: the collision being resolved in the spatial domain, e.g. temporary shields for blindfolding the interrogator in specific directions] [N1111]

G06K7/10A1E1 . . . . . [N: the interrogation device using at least one directional antenna or directional interrogation field to resolve the collision (direction or location finding, such as triangulation techniques, G01S13)] [N1111]

G06K7/10A1E1A . . . . . . [N: the directional field being used for pinpointing the location of the record carrier, e.g. for finding or locating an RFID tag amongst a plurality of RFID tags, each RFID tag being associated with an object e.g. for physically locating the RFID tagged object in a warehouse] [N1111]

G06K7/10A1G . . . . [N: interrogating only those RFIDs that fulfill a predetermined requirement, e.g. selecting all RFIDs having the same speed and moving in a cloud like fashion. e.g. on the same train; interrogating only RFIDs having a certain predetermined temperature, e.g. in the same fridge, another possibility being the active ignoring of a group of tags that fulfill a predetermined requirement, equivalent to the Boolean NOT operation] [N1111]

G06K7/10A2 . . . [N: the sensing being preceded by at least one preliminary step] [C1202]

G06K7/10A2A . . . . [N: the step consisting of detection of the presence of one or more record carriers in the vicinity of the interrogation device] [N1111]

G06K7/10A2C . . . . [N: the step consisting of determining the type of record carrier, e.g. to determine if the record carrier is an RFID tag of the long or short range type, or to determine the preferred communication protocol of the RFID tag] [N1111]

G06K7/10A2E . . . . [N: the step consisting of dynamically tuning the resonant circuit of the interrogation device that is emitting the interrogation signal, e.g. for impedance matching inside of the interrogation device (for tuning related to

loop aerials in general H01Q7/00)] [N1111]

G06K7/10A3 . . . [N: methods and means used by the interrogation device for reliably powering the wireless record carriers using an electromagnetic interrogation field] [N1111]

G06K7/10A3A . . . . [N: the powering being adversely affected by environmental influences, e.g. unwanted energy loss in the interrogation signal due to metallic or capacitive objects in the proximity of the interrogation device or in the proximity of the interrogated record carrier] [N1111]

G06K7/10A3C . . . . [N: including auxiliary means for focusing, repeating or boosting the electromagnetic interrogation field (comparable booster antennas integrated on the record carrier itself G06K19/077T7M)] [N1111]

G06K7/10A3C1 . . . . . [N: the repeating consisting of intelligently propagating data from record carriers via intermediate stations to the interrogation device, e.g. a distant RFID or RFID falling in a "shadow" region sending its identification data to an interrogation device using at least the help of one further RFID that is positioned in a region "visible" to the interrogation device, the further RFID therefore functioning as a relay station] [N1111]

G06K7/10A4 . . . [N: setting parameters for the interrogator, e.g. programming parameters and operating modes] [N1111]

G06K7/10A4A . . . . [N: parameter settings related to power consumption of the interrogator] [N1111]

G06K7/10A4C . . . . [N: parameter settings controlling the transmission power of the interrogator] [N1111]

G06K7/10A4E . . . . [N: loading programming parameters or programs into the interrogator, e.g. for configuring the interrogator] [N1111]

G06K7/10A5 . . . [N: the reader and the record carrier being capable of selectively switching between reader and record carrier appearance, e.g. in near field communication [NFC] devices where the NFC device may function as an RFID reader or as an RFID tag] [N1111]

G06K7/10A5A . . . . [N: issues specific to the use of single wire protocol [SWP] in NFC like devices] [N1111]

G06K7/10A6 . . . [N: arrangements for protecting the interrogation against piracy attacks (computer security in general G06F21/00; jamming of communication, countermeasures H04K3/00; secret communication H04K1/00)] [N1111] [C1204]

G06K7/10A6A . . . . [N: the arrangement comprising a circuit inside of the interrogation device] [N1111]

G06K7/10A6C . . . . [N: the arrangement being mechanical, such as reinforced housings or protective cages against unlawful entry] [N1111]

G06K7/10A6E . . . . [N: the arrangement including a further device in the proximity of the interrogation device, e.g. signal scrambling devices] [N1111]

G06K7/10A7 . . . [N: arrangements for handling protocols designed for non-contact record carriers such as RFIDs NFCs, e.g. ISO/IEC 14443 and 18092 (Protocols for data communication in general, see H04L29/06)] [N1111]

G06K7/10A7A . . . . [N: ultra wide band] [N1111]

G06K7/10A8 . . . [N: using at least one antenna particularly designed for interrogating the wireless record carriers (antennas in general H01Q1/22)] [N1111]

G06K7/10A8A . . . . [N: the antenna being of the very-near field type, e.g. capacitive] [N1111]

G06K7/10A8C . . . . [N: the antenna being of the near field type, inductive coil] [N1111]

G06K7/10A8E . . . . [N: the antenna being of the far field type, e.g. HF types or dipoles] [N1111]

G06K7/10A8G . . . . [N: using a plurality of antennas, e.g. configurations including means to resolve interference between the plurality of antennas] [N1111]

G06K7/10A9 . . . [N: the interrogation device being adapted for miscellaneous applications] [N1111]

G06K7/10A9A . . . . [N: the interrogation device being adapted for being moveable] [N1111]

G06K7/10A9A1 . . . . . [N: the interrogation device being of the portable or hand-handheld type, e.g. incorporated in ubiquitous hand-held devices such as PDA or mobile phone, or in the form of a portable dedicated RFID reader] [N1111]

G06K7/10A9A3 . . . . . [N: the interrogation device being wearable, e.g. as a glove, bracelet, or ring (wearable aerials in general H01Q1/27)] [N1111]

G06K7/10A9A5 . . . . . [N: the interrogation device including an arrangement for sensing environmental parameters, such as a temperature or acceleration sensor, e.g. used as an on/off trigger or as a warning means] [N1111]

G06K7/10A9C . . . . [N: the interrogation device being fixed in its position, such as an access control device for reading wireless access cards, or a wireless ATM (banking machines in general G07F19/00)] [N1111]

G06K7/10A9C1 . . . . . [N: the interrogation device being arranged for interrogation of record carriers passing by the interrogation device] [N1111]

G06K7/10A9C1A . . . . . . [N: the interrogation device being positioned close to a conveyor belt or the like on which moving record carriers are passing (conveying in accordance with bodily destination marks, see B65G47/46, sorting of objects carrying identity markings, see B07C5/34)] [N1111]

G06K7/10A9C1A1 . . . . {7 dots} [N: the record carriers being fixed to further objects, e.g. RFIDs fixed to packages, luggage, mail-pieces or work-pieces transported on a conveyor belt] [N1111]

G06K7/10A9C1A3 . . . . {7 dots} [N: the record carriers being fixed to an endless tape or at least not fixed to further objects] [N1111]

G06K7/10A9E . . . . [N: the interrogation device being capable of self-diagnosis, e.g. in addition to or as part of the actual interrogation process (testing of electrical circuits in general G01R31/28)] [N1111]

G06K7/10A9G . . . . [N: arrangements to facilitate interaction with further interrogation devices, e.g. such that at least two interrogation devices may function and cooperate in a network of such devices] [N1111]

G06K7/10S . . [N: by scanning of the records by radiation in the optical part of the electromagnetic spectrum] [N9902] [C1202]

G06K7/10S2 . . . [N: Moving beam scanning] [N9902]

G06K7/10S2B . . . . [N: Light sources] [N9902]

G06K7/10S2B2 . . . . . [N: Multiple sources] [N9902]

G06K7/10S2B4 . . . . . [N: Source control] [N9902]

G06K7/10S2P . . . . [N: Beam path] [N9902]

G06K7/10S2P2 . . . . . [N: Basic scanning using moving elements] [N9902]

G06K7/10S2P2B . . . . . . [N: by rotation, e.g. polygon] [N9902]

G06K7/10S2P2B2 . . . . {7 dots} [N: Constructional details] [N9902]

G06K7/10S2P2D . . . . . . [N: by oscillation] [N9902]

G06K7/10S2P2D2 . . . . {7 dots} [N: Activating means] [N9902]

G06K7/10S2P2D2B . . . . {8 dots} [N: using flexible or piezoelectric means] [N9902]

G06K7/10S2P2F . . . . . . [N: using hologram] [N9902]

G06K7/10S2P2H . . . . . . [N: Parallel lines] [N9902]

G06K7/10S2P4 . . . . . [N: Arrangement of fixed elements] [N9902]

G06K7/10S2P4B . . . . . . [N: for omnidirectional scanning] [N9902]

G06K7/10S2P4D . . . . . . [N: Particularities of propagating elements, e.g. lenses, mirrors (G06K7/10B takes precedence)] [N9902] [C1102]

G06K7/10S4 . . . [N: Fixed beam scanning] [N9902]

G06K7/10S4D . . . . [N: Photodetector array or CCD scanning] [N9902]

G06K7/10S4D2 . . . . . [N: Light sources] [N9902]

G06K7/10S4D4 . . . . . [N: including a diffuser for diffusing the light from the light source to create substantially uniform illumination of the target record carrier] [N1111]

G06K7/10S4D6 . . . . . [N: Exposure time control] [N1204]

G06K7/10S4M . . . . [N: Relative movement] [N9902]

G06K7/10S4M2 . . . . . [N: Moved readers, e.g. pen, wand] [N9902]

G06K7/10S4M4 . . . . . [N: Slot readers] [N9902]

G06K7/10S8 . . . [N: Special measures in relation to the object to be scanned] [N9902]

G06K7/10S8B . . . . [N: Multidistance reading] [N9902]

G06K7/10S8B2 . . . . . [N: Focalisation] [N9902]

G06K7/10S9 . . . [N: further details of bar or optical code scanning devices] [N1111]

G06K7/10S9B . . . . [N: Arrangement of optical elements, e.g. lenses, mirrors, prisms (optical elements per se G02B)] [N1111]

G06K7/10S9C . . . . [N: Particularities of the light-sensitive elements (semiconductor devices H01L)] [N1111]

G06K7/10S9D . . . . [N: Circuits for pulse shaping, amplifying, eliminating noise signals, checking the function of the sensing device (basic electronic circuitry H03)] [N1111]

G06K7/10S9E . . . . [N: sensing of data fields affixed to objects or articles, e.g. coded labels (postal sorting B07C3/14, conveying articles B65G47/48)] [N1111]

G06K7/10S9E1 . . . . . [N: randomly oriented data-fields, code-marks therefore, e.g. concentric circles-code] [N1111]

G06K7/10S9F . . . . [N: constructional details of hand-held scanners] [N1111]

G06K7/10S9F2 . . . . . [N: the scanner to be worn on a finger or on a wrist] [N1111]

G06K7/10S9F4 . . . . . [N: adaptations to make the hand-held scanner useable as a fixed scanner] [N1111]

G06K7/10S9F6 . . . . . [N: means to wake up the scanner from a sleep mode, e.g. using an acceleration sensor indicating that the scanner is being picked up by a user] [N1111]

G06K7/10S9G . . . . [N: sensing by means of TV-scanning] [N1111]

G06K7/10S9H . . . . [N: sensing, after transfer of the image of the data-field to an intermediate store, e.g. storage with cathode ray tube] [N1111]

G06K7/10S9J . . . . [N: the record carrier being at least partially of the hologram type] [N1111]

G06K7/10S9L . . . . [N: the scanner comprising adaptations for scanning a record carrier that is displayed on a display-screen or the like] [N1111]

G06K7/10S9N . . . . [N: the scanner having more than one scanning window, e.g. two substantially orthogonally placed scanning windows for integration into a check-out counter of a super-market] [N1111]

G06K7/10S9T . . . . [N: Optical sensing of electronic memory record carriers, such as interrogation of RFIDs with an additional optical interface] [N1111]

G06K7/10S9V . . . . [N: the scanning arrangement having a modular construction] [N1204]

G06K7/10V . . [N: scanning using X-rays] [N1111]

G06K7/12 . . using a selected wavelength, e.g. to sense red marks and ignore blue marks

G06K7/14	. .	using light without selection of wavelength, e.g. sensing reflected white light [N: (G06K7/10S9B to G06K7/10S9T take precedence)] [C1202]
G06K7/14A	. . .	[N: Methods for optical code recognition] [N1202]
G06K7/14A2	. . . .	[N: the method being specifically adapted for the type of code] [N1202]
G06K7/14A2A	. . . . .	[N: 1D bar codes] [N1202]
G06K7/14A2C	. . . . .	[N: 2D bar codes] [N1202]
G06K7/14A2E	. . . . .	[N: Circular bar codes] [N1202]
G06K7/14A2G	. . . . .	[N: Multi-level bar codes] [N1202]
G06K7/14A2K	. . . . .	[N: Glyph-codes] [N1202]
G06K7/14A2M	. . . . .	[N: Barcodes with supplemental or add-on codes] [N1202]
G06K7/14A4	. . . .	[N: including a method step for retrieval of the optical code] [N1202]
G06K7/14A4A	. . . . .	[N: locating of the code in an image] [N1202]
G06K7/14A4C	. . . . .	[N: extracting optical codes from image or text carrying said optical code] [N1202]
G06K7/14A4E	. . . . .	[N: detecting bar code edges] [N1202]
G06K7/14A4G	. . . . .	[N: determining the orientation of the optical code with respect to the reader and correcting therefore] [N1202]
G06K7/14A6	. . . .	[N: the method including quality enhancement steps] [N1202]
G06K7/14A6A	. . . . .	[N: using several successive scans of the optical code] [N1202]
G06K7/14A6C	. . . . .	[N: using sub-pixel interpolation] [N1202]
G06K7/14A6E	. . . . .	[N: error correction] [N1202]
G06K7/14A6G	. . . . .	[N: adapting the threshold for pixels in a CMOS or CCD pixel sensor for black and white recognition] [N1202]
G06K7/14A6M	. . . . .	[N: using fuzzy logic or natural solvers, such as neural networks, genetic algorithms and simulated annealing] [N1204]
G06K7/14A6P	. . . . .	[N: Setting the threshold-width for bar codes to be decoded] [N1204]
G06K7/14A6R	. . . . .	[N: the method including a reconstruction step, e.g. stitching two pieces of bar code together to derive the full bar code] [N1204]
G06K7/14A8	. . . .	[N: the method including an image compression step] [N1204]

G06K9/00	**Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints** (processing or analysis of tracks of nuclear particles G01T5/02; [N: information retrieval G06F17/30; medical diagnosis G06F19/00A2; recognition of molecular sequences G06F19/00C; radio frequency identification G06K7/00; recognition of barcodes and similar code images G06K7/10; computer systems based on specific computational models G06N; image analysis, inspection, positioning or tracking G06T7/00; recognition of acoustic speech signals G10L15/00; acoustic speaker identification G10L17/00]) [C0504]

[N: **Notes**
1. In this group, the following term is used with the meaning indicated:
- "recognising" includes several functions such as extracting features, clustering, classifying or matching.
2. IPC subgroups G06K9/20, G06K9/36, G06K9/62 and G06K9/74 refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range G06K9/00A to G06K9/00W. The ECLA subgroups in the range G06K9/00A to G06K9/00W refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.

3. The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under G06F3/00
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G06K9/00A	.		[N: Acquiring or recognising fingerprints or palmprints (non-computerised biometric identification A61B5; means for preventing unauthorised use of vehicles B60R25/00; security in computer systems G06F21/00; secure access to buildings G07C9/00; secret or secure communication H04L9/00; means for preventing unauthorised telephone calls H04M1/667)] [C0504]
G06K9/00A1	.	.	[N: Image acquisition (materials for developing fingerprints, means for visual identification A61B5/117B)] [C0701]
G06K9/00A1A	.	.	. [N: by non-optical methods, e.g. by ultrasonic or capacitive sensing] [N9810]
G06K9/00A1C	.	.	. [N: by combining adjacent partial images (e.g. slices) to create a composite input or reference pattern; tracking a sweeping finger movement (for specific swipe sensing hardware the groups G06K9/00A1A, G06K9/00A1D, G06K9/00A1E and G06K9/00A1G take precedence)] [N0504]
G06K9/00A1D	.	.	. [N: by direct reading, i.e. contactless acquisition] [N0504]
G06K9/00A1E	.	.	. [N: by using electro-optical elements or layers, e.g. electroluminescent sensing] [N0504]
G06K9/00A1G	.	.	. [N: by using geometrical optics, e.g. using prisms (G06K9/00A1D takes precedence)] [N0504]
G06K9/00A1P	.	.	. [N: Protecting the fingerprint sensor against damage caused by the finger (protecting semiconductor devices against mechanical damage in general H01L23/00M; encapsulations of semiconductor devices H01L23/28; protecting semiconductor devices against electrostatic discharges in general H01L23/60, H01L27/02B4)] [N0601]
G06K9/00A2	.	.	[N: Preprocessing; Feature extraction (minutiae)]
G06K9/00A2M	.	.	. [N: Extracting features related to minutiae and pores] [N0701]
G06K9/00A2T	.	.	. [N: Extracting features related to ridge properties; determining the fingerprint type, e.g. whorl, loop] [N0504] [C0701]
G06K9/00A3	.	.	[N: Matching; Classification] [C0504]
G06K9/00A3M	.	.	. [N: Matching features related to minutiae and pores] [N0701]
G06K9/00A3T	.	.	. [N: Matching features related to ridge properties or fingerprint texture] [N0701]
G06K9/00A4	.	.	[N: Detecting the live character of the finger, i.e. distinguishing from a fake or cadaver finger (fingerprint spoof detection by analysing recognition results G06K9/00A3)] [N0601]
G06K9/00A4P	.	.	. [N: using image processing] [N0601]
G06K9/00A4S	.	.	. [N: using acquisition arrangements] [N0601]
G06K9/00B	.		[N: Acquiring and recognising microscopic objects, e.g. biological cells and cellular parts (apparatus for measuring microbiological properties C12M1/34; optical analysis of chemical or physical properties of particles, e.g. investigation of dimensions G01N15/14; biomedical image inspection G06T7/00B2)] [C0704] [M1207]
G06K9/00B1	.	.	[N: Acquisition, e.g. centering the image field (fluorescence analysis G01N21/64; scanning microscopes G02B21/00M4; processing of multiple slides G02B21/36V] [N1205]
G06K9/00B2	.	.	[N: Pre-processing, e.g. image segmentation (segmentation for general image processing G06T7/00S); Feature extraction] [N1205]

G06K9/00B3 . . [N: Matching; Classification] [N0704]

G06K9/00C . [N: Reading or verifying signatures; Writer recognition] [C0504]

G06K9/00C1 . . [N: based only on signature image, e.g. static signature recognition] [N0701]

G06K9/00C2 . . [N: based only on signature signals such as velocity or pressure, e.g. dynamic signature recognition] [N0701]

G06K9/00C2A . . . [N: Acquisition] [N0701]

G06K9/00C2M . . . [N: Matching; classification] [N0701]

G06K9/00C2P . . . [N: Preprocessing; feature extraction] [N0701]

G06K9/00C2P1 . . . . [N: Sampling; contour coding; stroke extraction] [N0701]

G06K9/00D . [N: Recognising three-dimensional objects, e.g. using range or tactile information (arrangements for measuring depth G01B11/22, for measuring curvatures G01B11/24; processing image data for depth or shape recovery G06T7/00R; registration of range data G06T7/00D1)] [N1205]

G06K9/00D1 . . [N: by matching two-dimensional images to three-dimensional objects] [N0504]

G06K9/00D3 . . [N: by matching three-dimensional models, e.g. conformal mapping of Riemann surfaces] [N0701]

G06K9/00F . [N: Acquiring or recognising human faces, facial parts, facial sketches, facial expressions] [C0504]

G06K9/00F1 . . [N: Detection; Localisation; Normalisation] [N9610]

G06K9/00F1C . . . [N: using pixel segmentation or colour matching (segmentation for general image processing G06T7/00S; colour analysis G06T7/40C)] [N1205]

G06K9/00F1H . . . [N: using holistic features (extraction or representation of holistic features per se G06K9/00F2H)] [N0502]

G06K9/00F1L . . . [N: using facial parts and geometric relationships (extraction or representation of facial parts per se G06K9/00F2L)] [N0502]

G06K9/00F1S . . . [N: using acquisition arrangements] [N0601]

G06K9/00F1V . . . [N: using comparisons between temporally consecutive images (face tracking G06T7/20)] [N0601]

G06K9/00F2 . . [N: Feature extraction; Face representation] [N9610]

G06K9/00F2H . . . [N: Holistic features and representations, i.e. based on the facial image taken as a whole (statistical feature extraction in general G06K9/62B4; matching eigenfaces G06K9/00F3)] [N0502]

G06K9/00F2L . . . [N: Local features and components; Facial parts (iris recognition G06K9/00S); Occluding parts, e.g. glasses; Geometrical relationships] [N0502]

G06K9/00F3 . . [N: Classification, e.g. identification] [N9610]

G06K9/00F3U . . . [N: of unknown faces, i.e. recognising the same non-enrolled faces, e.g. recognising the unknown faces across different face tracks (tracking in general G06T7/20; detecting affinities between people using analysis of image collections G06K9/00V2C)] [N1205]

G06K9/00F4 . . [N: Facial expression recognition] [N1205]

G06K9/00F4A . . . [N: Static expression] [N1205]

G06K9/00F4B . . . [N: Dynamic expression] [N1205]

G06K9/00G   .   [N: Recognising movements or behaviour, e.g. recognition of gestures, dynamic facial expressions; Lip-reading (using movements or postures of body parts for inputting data to a computer G06F3; static facial expressions G06K9/00F; recognition of scene events G06K9/00V; analysis of movement G06T7/20; lip-reading assisted speech recognition G10L15/24)] [N0209] [C0504]

G06K9/00G1   .   .   [N: Recognition of whole body movements, e.g. for sport training] [N0701]

G06K9/00G1G   .   .   .   [N: Recognition of walking or running movements, e.g. gait recognition] [N0701]

G06K9/00G2   .   .   [N: Recognition of hand or arm movements, e.g. recognition of deaf sign language (static hand posture recognition G06K9/00H2)] [N0701]

G06K9/00H   .   [N: Recognising human body or animal bodies, e.g. vehicle occupant, pedestrian; Recognising body parts, e.g. hand (passenger detection systems B60N2/00C; handprints G06K9/00A; face and facial components G06K9/00F; eyes G06K9/00S; determining position of passenger G06T7/00P)] [N0310] [C0504]

G06K9/00H1   .   .   [N: Recognition of whole body, e.g. static pedestrian or occupant recognition (G06K9/00G1 takes precedence)] [N0701]

G06K9/00H2   .   .   [N: Recognition of hand or arm, e.g. static hand biometric or posture recognition (G06K9/00G2 takes precedence; palmprint and fingerprint recognition G06K9/00A)] [N0701]

G06K9/00H2B   .   .   .   [N: Static hand biometric or posture recognition] [N1205]

G06K9/00H2G   .   .   .   [N: Static hand gesture recognition] [N1205]

G06K9/00K   .   [N: Recognising digital ink, i.e. recognising temporal sequences of handwritten position coordinates (G06K9/00C takes precedence; interaction arrangements using gestures traced on a digitiser G06F3/048A3G; acquisition of digital ink as far as essentially related to recognition G06K9/22H)] [N0701] [M1207]

G06K9/00K2   .   .   [N: Preprocessing; Feature extraction] [N0701]

G06K9/00K2S   .   .   .   [N: Sampling; contour coding; stroke extraction] [N0701]

G06K9/00K3   .   .   [N: Matching; classification] [N0701]

G06K9/00K3A   .   .   .   [N: using a special pattern or subpattern alphabet] [N0701]

G06K9/00K3U   .   .   .   [N: using human interaction, e.g. selection of the best displayed recognition candidate] [N0701]

G06K9/00L   .   [N: Document analysis and understanding; Document recognition] [N1205]

G06K9/00L1   .   .   [N: Layout structured with printed lines or input boxes, e.g. business forms, tables (tables without printed lines or boxes G06K9/00L3; identification of document type using identifier or marker G06K9/20R)] [N1205]

G06K9/00L2   .   .   [N: Classification of image contents, e.g. text, photographs, tables (discrimination based on image tones H04N1/40L)] [N1205]

G06K9/00L3   .   .   [N: Document analysis by extracting the geometrical structure, e.g. layout tree; Block segmentation, e.g. bounding boxes for graphics, paragraphs, words or letters] [N1205]

G06K9/00L4   .   .   [N: Document understanding by extracting the logical structure, e.g. chapters, sections, columns, titles, paragraphs, captions, page number, and identifying its elements, e.g. author, keywords, ZIP code, money amount] [N1205]

G06K9/00L5   .   .   [N: Reading or recognising technical drawings or geographical maps] [N1205]

G06K9/00L6   .   .   [N: Document matching] [N1205]

G06K9/00M   .   [N: Recognising patterns in signals and combinations thereof (signature verification G06K9/00C; analysing specific medical signals, e.g. bioelectric signals, blood pressure A61B5; processing radar and similar signals G01S; analysis of

chromatographic signals G01N30/86; processing seismic signals G01V1/28, G01V1/46; acoustic speech processing G10L; transmission systems H04B1/00)] [N0504]

[N: **WARNING:**
not complete, see G06F17/00D
]

G06K9/00M1	.	.	[N: Preprocessing, e.g. filtering (electrical circuits for filtering H03H; adaptive filters H03H21; convolution-based filters H03H17, H03H21)] [N0504]
G06K9/00M1D	.	.	.	[N: Denoising] [N0701]
G06K9/00M1D1	.	.	.	.	[N: by applying a scale-space analysis, e.g. using wavelet analysis] [N0701]
G06K9/00M2	.	.	[N: Feature extraction (arrangements for measuring frequencies and for spectral analysis G01R23/16; algorithms for spectral analysis, digital electric mathematical transforms per se G06F17/14)] [N0504]
G06K9/00M2P	.	.	.	[N: by analysing the shape of a waveform, e.g. extracting parameters relating to peaks] [N0701]
G06K9/00M3	.	.	[N: Classification; Matching (digital electric correlation G06F17/15; electronic classification and matching per se G06K9/62)] [N0504]
G06K9/00M3P	.	.	.	[N: by matching peak patterns] [N0701]
G06K9/00M3S	.	.	.	[N: by matching signal segments] [N0701]
G06K9/00M3S1	.	.	.	.	[N: by plotting the signal segments against each other, e.g. analysing scattergrams] [N0701]
G06K9/00M3S2	.	.	.	.	[N: by applying autoregressive analysis] [N0701]
G06K9/00M4	.	.	[N: Source localisation; Inverse modelling (electroencephalography A61B5/476; source separation G06K9/62B4N; image reconstruction from projection, e.g. tomography G06T11/00T; beam formers in general G10K11/34; radiotransmission systems for beam forming H04B7/04)] [N0504] [C0701]
G06K9/00R	.	[N: Recognising objects characterised by unique random properties, i.e. objects having a physically unclonable function [PUF], e.g. authenticating objects based on their unclonable texture (verifying genuineness of valuable papers G07D7/00)] [N1205]
G06K9/00S	.	[N: Acquiring or recognising eyes, e.g. iris verification] [N0209] [C0504]
G06K9/00S1	.	.	[N: Acquisition] [N0504]
G06K9/00S2	.	.	[N: Preprocessing; Feature extraction] [N0701]
G06K9/00S3	.	.	[N: Matching; Classification] [N0701]
G06K9/00V	.	[N: Recognising scenes, i.e. recognition of a whole field of perception; recognising scene-specific objects (image retrieval G06F17/30M; video retrieval G06F17/30V; image analysis and image segmentation, e.g. pixel labelling G06T7/00; alarm systems G08B; traffic control G08G; pictorial communication H04N)] [N1205]
G06K9/00V1	.	.	[N: Recognising patterns in remote scenes, e.g. aerial images, vegetation versus urban areas (radar and similar technologies G01S; segmentation for general image processing G06T7/00S)] [N1205]
G06K9/00V1B	.	.	.	[N: of urban or other man made structures] [N1205]
G06K9/00V1N	.	.	.	[N: of network patterns, such as roads, rivers] [N1205]
G06K9/00V1V	.	.	.	[N: of vegetation] [N1205]
G06K9/00V2	.	.	[N: Recognising scenes such as could be captured by a camera operated by a pedestrian or robot, including objects at substantially different ranges from the

camera] [N1205]

| G06K9/00V2A | . . . | [N: for providing information about objects in the scene to a user, e.g. as in augmented reality applications] [N1205] |

| G06K9/00V2C | . . . | [N: Analysis of image collections based on shared content, e.g. to detect affinity between persons] [N1205] |

| G06K9/00V2S | . . . | [N: Categorising the entire scene, e.g. birthday party or wedding scene] [N1205] |

| G06K9/00V2S1 | . . . . | [N: Indoor scenes] [N1205] |

| G06K9/00V2S2 | . . . . | [N: Outdoor scenes] [N1205] |

| G06K9/00V2S2S | . . . . . | [N: Urban scenes] [N1205] |

| G06K9/00V3 | . . | [N: Recognising video content, e.g. extracting audiovisual features from movies, extracting representative key-frames, discriminating news vs. sport content (information retrieval in video databases G06F17/30V; recognition of movements or behaviour G06K9/00G; extracting overlay text G06K9/32R1T2; fusion techniques G06K9/62F; speech recognition G10L15; indexing of audio and video or audiovisual data on record media using extracted features or characteristics G11B27/28)] [N1205] |

| G06K9/00V3C | . . . | [N: Higher-level, semantic clustering, classification or understanding of video scenes, e.g. detection, labelling or Markovian modelling of sport events or news items (segmenting video sequences G06K9/00V3S; clustering techniques per se G06K9/62B1; classification techniques per se G06K9/62C)] [N1205] |

| G06K9/00V3C1 | . . . . | [N: of sport video content (determination of trajectories G06T7/20)] [N1205] |

| G06K9/00V3C2 | . . . . | [N: of news video content] [N1205] |

| G06K9/00V3F | . . . | [N: Extracting features from the video content, e.g. video "fingerprints", or characteristics, e.g. by automatic extraction of representative shots or key frames (segmentation for general image processing G06T7/00S; use of extracted content features in video information retrieval G06F17/30V1; automated annotation of image based on image contents G06K9/00V2A; determination of region of interest for recognition G06K9/32R; extraction of image features or characteristics G06K9/46, determining representative patterns G06K9/62B6)] [N1205] |

| G06K9/00V3F1 | . . . . | [N: Detecting suitable features for summarising video content (presentation in the form of a video summary G06F17/30V4S; editing video summary G11B27/034; programmed access to video content G11B27/10A1)] [N1205] |

| G06K9/00V3M | . . . | [N: Matching video sequences (aligning the image field G06K9/32; image matching techniques G06K9/00D, G06K9/62; registration of image sequences G06T7/00D1Z)] [N1205] |

| G06K9/00V3S | . . . | [N: Segmenting video sequences, i.e. computational techniques such as parsing or cutting the sequence, low-level clustering or determining units such as shots and scenes (segmentation of touching or overlapping patterns in the image field G06K9/34; segmentation for general image processing G06T7/00S; segmentation of an image based on motion information G06T7/20A; picture signal circuitry for scene change detection H04N5/14S)] [N1205] |

| G06K9/00V4 | . . | [N: Recognising scenes under surveillance, e.g. with Markovian modelling of scene activity (G06K9/00V5 takes precedence; recognition of movements or behaviour G06K9/00G; motion analysis using general image processing G06T7/20; intruder alarms using image scanning and comparing systems G08B13/194C; circuitry for movement detection and estimation for pictorial communication H04N5/14M; closed circuit television systems H04N7/18)] [N0704] [M1207] |

| G06K9/00V4C | . . . | [N: Recognition or static of dynamic crowd images, e.g. recognition of crowd congestion (recognition of individual pedestrians G06K9/00H1, recognition of whole body movements G06K9/00G1; counting mechanisms G06M; analysis of motion G06T7/20; individual entry or exit registers G07C9/00)] [N1205] |

| G06K9/00V5 | . . | [N: Recognising traffic patterns acquired by static cameras (measuring or analysing |

of parameters relative to traffic conditions G08G1/01B; analysing traffic situation by means of optical sensors G08G1/04)] [N1205]

G06K9/00V6	. .		[N: Recognising scenes perceived from the perspective of a land vehicle, e.g. recognising lanes, obstacles or traffic signs on road scenes (vehicle signalling devices B60Q1/48B, B60Q1/52A; viewing systems for vehicles being directed to the improvement of the driver's vision B60R1/00; means for informing the driver B60W50/08K; steering aid displays B62D15/02; control of position of land vehicles using camera and image processing G05D1/02E6V; traffic control for road vehicles, e.g. involving several vehicles or traffic rules G08G1/00)] [N1205]
G06K9/00V6B	. . .		[N: Recognition of lanes or road borders, e.g. of lane markings, or recognition of driver's driving pattern in relation to lanes perceived from the vehicle; Analysis of car trajectory relative to detected road (determination of trajectories G06T7/20)] [N1205]
G06K9/00V6P	. . .		[N: Detecting potential obstacles (recognising people G06K9/00H)] [N1205]
G06K9/00V6Q	. . .		[N: Recognition of available parking space] [N1205]
G06K9/00V6S	. . .		[N: Recognising traffic signs] [N1205]
G06K9/00V6T	. . .		[N: Recognition of vehicle or traffic lights] [N1205]
G06K9/00V7	. .		[N: Recognising scenes inside a vehicle, e.g. related to occupancy, driver state, inner lighting conditions] [N1205]
G06K9/00V7C	. . .		[N: Recognising seat occupancy, e.g. forward or rearward facing child seat] [N1205]
G06K9/00V7D	. . .		[N: Recognising the driver's state or behaviour, e.g. attention, drowsiness (anti-dozing alarms G08B21/06; safety device responsive to condition of driver B60K28/02; psychotechnic devices for vehicle drivers A61B5/18)] [N1205]
G06K9/00W	.		[N: Recognising whole cursive words] [N9809] [C0504]
G06K9/00W1	. .		[N: using word shape] [N9809]
G06K9/00W2	. .		[N: using stroke segmentation] [N9809]
G06K9/00W2L	. . .		[N: with lexical matching] [N9809]
G06K9/00W2N	. . .		[N: with probabilistic networks, e.g. hidden Markov models] [N9809]
G06K9/00X	.		[N: Biometric patterns not provided for under G06K9/00A, G06K9/00C, G06K9/00G , G06K9/00H , G06K9/00S; Biometric specific functions not specific to the kind of biometric] [N1205]
G06K9/00X1	. .		[N: Use of multiple biometrics (sensor fusion G06K9/62F1)] [N1205]
G06K9/00X2	. .		[N: Spoof detection (G06K9/00A4 takes precedence)] [N1205]
G06K9/00X2L	. . .		[N: Detection of body part being alive] [N1205]
G06K9/00X3	. .		[N: Interactive means for assisting the user in correctly positioning the object of interest] [N1205]
G06K9/00X4	. .		[N: Static means for assisting the user in correctly positioning the object of interest] [N1205]
G06K9/00X5	. .		[N: Maintenance of references; Enrolment] [N1205]
G06K9/00Y	.		[N: Hardware and software architectures for pattern recognition, e.g. modular organisation] [N0209]
G06K9/00Y1	. .		[N: structured as a network] [N0504]
G06K9/00Y2	. .		[N: using specific electronic processors] [N0504]
G06K9/00Z	.		[N: Management of recognition tasks] [N0209]

G06K9/03   .   Detection or correction of errors, e.g. by rescanning the pattern [N: (validation or performance evaluation G06K9/62B10)] [N1205]

G06K9/03A   .   .   [N: with the intervention of an operator] [N9809]

G06K9/03Q   .   .   [N: Evaluation of quality of acquired pattern] [N1205]

G06K9/18   .   using printed characters having additional code marks or containing code marks, e.g. the character being composed of individual strokes of different shape, each representing a different code value

G06K9/18C   .   .   [N: Characters composed of bars, e.g. CMC-7 (bar code forming unreadable characters, e.g. UPC, G06K7/00)]

G06K9/18M   .   .   [N: Recognition of characters printed with magnetic ink (G06K9/18C takes precedence)] [N1205]

G06K9/20   .   Image acquisition

G06K9/20A   .   .   [N: Construction of image pick-up using regular bi-dimensional dissection]

G06K9/20C   .   .   [N: Identifying/ignoring parts by sensing at different wavelengths]

G06K9/20D   .   .   [N: Illumination control] [N0701]

G06K9/20E   .   .   [N: Special illumination such as grating, reflections, deflections, e.g. for characters with relief]

G06K9/20R   .   .   [N: Selective acquisition/locating/processing of specific regions, e.g. highlighted text, fiducial marks, predetermined fields, document type identification (G06K9/20C, G06K9/20S take precedence; recognising the document type with the paragraph layout G06K9/00L; recognising the document type with the layout of printed lines or input boxes G06K9/00L1)] [C9611] [M1207]

G06K9/20R1   .   .   .   [N: based on a marking or identifier characterising the document or the area (markings for centering the field of view on the document G06K9/32P)] [N0701]

G06K9/20R2   .   .   .   [N: based on positionally close symbols, e.g. amount sign or URL-specific characters (recognition with lexical or semantic contextt G06K9/72)] [N0701]

G06K9/20R3   .   .   .   [N: based on user interaction] [N0701]

G06K9/20S   .   .   [N: Sensor details, e.g. position, configuration, special lenses (G06K9/20C takes precedence)]

G06K9/22   .   .   using hand-held instruments

G06K9/22H   .   .   .   [N: the instrument generating sequences of position coordinates corresponding to handwriting; preprocessing or recognising digital ink (pen or stylus type devices inputting position G06F3/033P2, light pens G06F3/033P3; interaction arrangements using gestures traced on a digitiser G06F3/048A3G)] [C0504] [M1207]

G06K9/22H1   .   .   .   .   [N: in three dimensions] [N1205]

G06K9/22W   .   .   .   [N: Hand-held scanners; Optical wands]

G06K9/24   .   .   .   Construction of the instrument

G06K9/26   .   .   using a slot moved over the image

G06K9/28   .   .   using discrete sensing elements at predetermined points

G06K9/30   .   .   using automatic curve following means

G06K9/32   .   .   Aligning or centering of the image pick-up or image-field

G06K9/32E   .   .   .   [N: Orientation detection or correction, e.g. rotation of multiples of 90 degrees]

G06K9/32P   .   .   .   [N: by locating a pattern (G06K9/32E, G06K9/32S take precedence; centering within a document with a marking G06K9/20R1)] [C0704]

G06K9/32R   .   .   .   [N: Determination of region of interest (segmentation for general image

processing G06T7/00S)] [N1205]

G06K9/32R1	. . . .	Recognising objects as potential recognition candidates based on visual cues, e.g. shape [N1205]
G06K9/32R2	. . . .	[N: Detection of text region in scene imagery, real life image or Web pages, e.g. licenses plates, captions on TV images] [N1205]
G06K9/32R2A	. . . . .	[N: Scene text, e.g. street name] [N1205]
G06K9/32R2B	. . . . .	[N: Overlay text, e.g. embedded caption in TV program] [N1205]
G06K9/32S	. . .	[N: Inclination (skew) detection or correction of characters or of image to be recognised (determining orientation of objects in general G06T7/00P)] [C0704]
G06K9/32S1	. . . .	[N: of characters or characters lines] [N0704]
G06K9/34	. .	Segmentation of touching or overlapping patterns in the image field [N: (segmentation by quantisation, e.g. thresholding, G06K9/38; edge detection for image feature extraction G06K9/46A; extraction of connected components or edge linking G06K9/46A3; segmentation or edge detection for general image processing G06T7/00S)] [C0810]
G06K9/34C	. . .	[N: Cutting or merging image elements, e.g. region growing, watershed, clustering-based techniques (smoothing or thinning of patterns G06K9/44; clustering techniques G06K9/62B1; region-based segmentation for general image processing G06T7/00S1)] [N9609] [C0810]
G06K9/34P	. . .	[N: using recognition of characters or words (lexical postprocessing of segmented characters G06K9/72)] [N9609]
G06K9/34R	. . .	[N: Removing patterns interfering with the pattern to be recognised, such as ruled lines, underlines (extracting table structures G06K9/00L; document recognition G06K9/20R)] [N1205]
G06K9/34S	. . .	[N: using character size, text spacings, pitch estimation] [N9609]
G06K9/36	.	Image preprocessing, i.e. processing the image information without deciding about the identity of the image (image data processing or generation, in general G06T) [C9411]

Note
Group G06K9/58 takes precedence over groups G06K9/38 to G06K9/54

G06K9/38	. .	Quantising the analogue image signal [N: e.g. histogram thresholding for discrimination between background and foreground patterns (region-based segmentation of touching or overlapping patterns G06K9/34C; image segmentation for general image processing G06T7/00S1)] [C0810] [M1207]
G06K9/40	. .	Noise filtering [N: (restoration for general image processing G06T5/00D; morphologic operations for general image enhancement G06T5/30)] [M1207]
G06K9/42	. .	Normalisation of the pattern dimensions
G06K9/44	. .	Smoothing or thinning of the pattern [N: (restoration for general image processing G06T5/00D; morphologic operations for general image enhancement G06T5/30)] [M1207]
G06K9/46	. .	Extraction of features or characteristics of the image [N: (segmentation of touching or overlapping patterns G06K9/34; edge detection for feature extraction G06K9/46A; segmentation or edge detection for general image processing G06T7/00S)] [C0810]
G06K9/46A	. . .	[N: Detecting partial patterns, e.g. edges or contours, or configurations, e.g. loops, corners, strokes, intersections (extracting features by contour coding G06K9/48; edge-based segmentation for general image processing G06T7/00S2; edge detection for general image processing G06T7/00S3)] [N1205]
G06K9/46A1	. . . .	[N: by matching or filtering]

G06K9/46A1H   .   .   .   .   .   [N: filtering with Haar-like subimages, e.g. computation thereof with the integral image technique (biologically-inspired filters such as Gabor wavelets or local ICA kernels G06K9/46A1R; local approaches in face detection or representation G06K9/00F1L, G006K9/00F2L)] [N1205]

G06K9/46A1R   .   .   .   .   .   [N: Biologically-inspired filters, e.g. receptive fields] [N0704]

G06K9/46A1R1   .   .   .   .   .   .   [N: with interaction between the responses of different filters] [N0704]

G06K9/46A1R1N   .   .   .   .   {7 dots} [N: Integrating the filters into a hierarchical structure] [N0704]

G06K9/46A2   .   .   .   .   [N: by mapping characteristic values of the pattern into a parameter space, e.g. Hough transformation]

G06K9/46A3   .   .   .   .   [N: by analysing connectivity relationships of elements of the pattern, e.g. by edge linking, by connected component or neighbouring slice analysis, by Markov Random Field [MRF] analysis (segmentation of touching or overlapping patterns involving probabilistic approaches G06K9/34; MRF and other Markovian models in general G06K9/62G; computing shortest geodesic path G06K9/62M; segmentation involving probabilistic approaches for general image processing G06T7/00S4)] [C0810]

G06K9/46B   .   .   .   [N: by performing operations within image blocks or by using histograms (G06K9/46C and G06K9/46R take precedence; matching image histograms G06K9/64S)] [C0704]

G06K9/46B1   .   .   .   .   [N: summing image-intensity values; Projection and histogram analysis (intersections with "scanning" patterns G06K9/50; G06K9/46C takes precedence)] [N0504]

G06K9/46C   .   .   .   [N: related to colour (G06K9/46R takes precedence; colour-based face detection G06K9/00F1C; colour analysis in general G06T7/40C; region-based segmentation for general image processing G06T7/00S1; colour conversion and processing H04N1/46; coding colour pictures signals using a reduced set of representative colours H04N1/64C)] [N1205]

G06K9/46L   .   .   .   [N: related to illumination properties, e.g. according to a reflectance or lighting model (depth from shading G06T7/00R1; image rendering with lighting effects G06T15/50)] [C0704]

G06K9/46R   .   .   .   [N: Extracting features based on salient regional features, e.g. Scale Invariant Feature Transform [SIFT] keypoints (determination of region of interest for recognition [ROI] G06K9/32R; extraction of specific shape primitives, e.g. corner or loop, or of configurations thereof, G06K9/46A; biologically-inspired systems integrating saliency maps, e.g. for modelling visual attention G06K9/46A1R1N; global invariant features G06K9/52)] [N1205]

G06K9/46R1   .   .   .   .   [N: Extracting features based on a plurality of salient regional features, e.g. "bag of words" (saliency map with interactions such as reinforcement or inhibition G06K9/46A1R1)] [N1205]

G06K9/46S   .   .   .   [N: related to a structural representation of the pattern] [N0704]

G06K9/46S1   .   .   .   .   [N: Syntactic representation, e.g. using a grammatical approach (syntactic pattern recognition G06K9/68C)] [N0704] [M1207]

G06K9/46S2   .   .   .   .   [N: Graphical representation, e.g. directed attributed graph (graph matching G06K9/68C2)] [N0704]

G06K9/48   .   .   .   by coding the contour of the pattern [N: contour related features or features from contour like patterns, e.g. hand-drawn point-sequence]

G06K9/48A   .   .   .   .   [N: using vector-coding]

G06K9/48B   .   .   .   .   [N: analysing the spectrum of the contour, e.g. Fourier expansion]

G06K9/50   .   .   .   by analysing segments intersecting the pattern [N: segments obtained by the intersection of the pattern with a scanning pattern, e.g. random scanning, circular scanning (G06K9/46A3 takes precedence)]

G06K9/52	. . .	by deriving mathematical or geometrical properties from the whole image
G06K9/52A	. . . .	[N: Frequency domain transformation; Autocorrelation]
G06K9/52M	. . . .	[N: Computation of moments (moments not relevant for pattern recognition G06T7/60M)] [N0704]
G06K9/52W	. . . .	[N: Scale-space domain transformation, e.g. with wavelet analysis (wavelet transform as such G06F17/14W; compression of images with wavelet transform H04N7/26)] [N0704]
G06K9/54	. .	Combinations of preprocessing functions
G06K9/56	. . .	using a local operator, i.e. means to operate on an elementary image point in terms of the immediate surroundings of this point [N: (local operators for general image enhancement G06T5/20)] [N1205]
G06K9/58	. .	using optical means
G06K9/60	.	Combination of image acquisition and preprocessing functions
G06K9/60R	. .	[N: the combination being locally implemented within the sensing arrangement, e.g. artificial retina (receptive fields G06K9/46A1R; enhancement in image sensors H04N3/15, H04N5/217, H04N5/232, H04N5/235)] [N0704] [M1207]
G06K9/62	.	Methods or arrangements for recognition using electronic means (learning machines G06F15/18; digital correlation G06F17/15; analogue correlation G06G7/19)
G06K9/62A	. .	[N: Matching; Proximity measures] [N1205]
G06K9/62A1	. . .	[N: Comparing pixel values or logical combinations thereof, or feature values having positional relevance, e.g. template matching (specially adapted for image alignment G06T7/00D1; specially adapted for position determination G06T7/00P; specially adapted for the calculation of depth from stereo images G06T7/00R, specially adapted for image segmentation G06T7/00S; specially adapted for the analysis of motion G06T7/20)] [N1205]
G06K9/62A1A	. . . .	[N: Shifting or otherwise transforming the patterns to accommodate for positional errors] [N1205]
G06K9/62A1A1	. . . . .	[N: Matching of contours (G06K9/62A1A2, G06K9/62A1A3 take precedence)] [N1205]
G06K9/62A1A1H	. . . . . .	[N: by mapping curve parameters onto an accumulator array, e.g. generalised Hough Transform (detecting primitive shapes such as lines and circles by accumulating parameters of a known equation G06K9/46A2)] [N1205]
G06K9/62A1A2	. . . . .	[N: involving a deformation of the sample or reference pattern; Elastic matching (segmentation of touching or overlapping patterns involving deformable models G06K9/34; segmentation involving deformable models for general image processing G06T7/00S5)] [N1205]
G06K9/62A1A2L	. . . . . .	[N: based on a local optimisation criterion, e.g. "snakes", i.e. active contour models of the pattern to be recognised] [N1205]
G06K9/62A1A2S	. . . . . .	[N: based on shape statistics, e.g. active shape models of the pattern to be recognised] [N1205]
G06K9/62A1A2S1	. . . .	{7 dots} [N: based also on statistics of image patches, e.g. active appearance models of the pattern to be recognised] [N1205]
G06K9/62A1A3	. . . . .	[N: Matching configurations of points or features, e.g. constellation matching (G06K9/00A3 takes precedence)] [N1205]
G06K9/62A3	. . .	[N: Comparing statistics of pixel or of feature values, e.g. histogram matching] [N1205]
G06K9/62A6	. . .	[N: based on a parametric eigenspace representation, e.g. eigenspace representation using pose or illumination parameters; Shape manifold] [N1207]

G06K9/62A7	. . .	[N: Proximity measures, i.e. similarity or distance measures] [N1205]
G06K9/62B	. .	[N: Design or setup of recognition systems and techniques; Extraction of features in feature space; Clustering techniques; Blind source separation (regression analysis G06F17/18)] [N1205]
G06K9/62B1	. . .	[N: Clustering techniques] [N9506]
G06K9/62B1H	. . . .	[N: Hierarchical techniques, i.e. dividing or merging pattern sets so as to obtain a dendogram] [N0704]
G06K9/62B1P	. . . .	[N: Non-hierarchical partitioning techniques] [N0704]
G06K9/62B1P1	. . . . .	[N: based on statistics] [N0704]
G06K9/62B1P1A	. . . . . .	[N: with an adaptive number of clusters, e.g. ISODATA technique] [N0704]
G06K9/62B1P1F	. . . . . .	[N: with a fixed number of clusters, e.g. K-means clustering] [N0704]
G06K9/62B1P2	. . . . .	[N: based on graph theory, e.g. Minimum Spanning Trees [MST], graph cuts, spectral clustering techniques (segmentation of touching or overlapping patterns involving graph-based approaches G06K9/34C; graph embedding G06K9/62B4T1; segmentation involving graph-based approaches for general image processing G06T7/00S7)] [N0704] [C0810]
G06K9/62B1P3	. . . . .	[N:based on the modelling of probability density functions] [N0704]
G06K9/62B2	. . .	[N: Selection of pattern recognition techniques, e.g. of classifiers in a multi-classifier system] [N1205]
G06K9/62B3	. . .	[N: Selecting the most significant subset of features (G06K9/62B4 takes precedence)] [N9506]
G06K9/62B3G	. . . .	[N: by using evolutionary computational techniques, e.g. genetic algorithms (genetic algorithms per se G06N3/12G)] [N0704]
G06K9/62B3R	. . . .	[N: by ranking or filtering the set of features, e.g. using a measure of variance or of feature cross-correlation] [N0704]
G06K9/62B3S	. . . .	[N: by evaluating different subsets according to an optimisation criteria such as class separability, e.g. forward selection, backward elimination (linear discriminant analysis G06K9/62B4D)] [N0704]
G06K9/62B4	. . .	[N: Extracting features by transforming the feature space, e.g. multidimensional scaling; Mappings, e.g. subspace methods] [N9506] [C0501]
G06K9/62B4D	. . . .	[N: based on a discrimination criterion, e.g. discriminant analysis (discriminant functions G06K9/62B2)] [N0501]
G06K9/62B4D1	. . . . .	[N: Rendering the within-class scatter matrix nonsingular] [N0704]
G06K9/62B4M	. . . .	[N: based on a naturality criterion, e.g. with non-negative factorisation or negative correlation (matrix computation G06F17/16)] [N1205]
G06K9/62B4N	. . . .	[N: based on a separation criterion, e.g. independent component analysis] [N0504] [C0704]
G06K9/62B4N1	. . . . .	[N: of statistical independence, i.e. minimising mutual information or maximising nongaussianity] [N0504] [C0704]
G06K9/62B4N2	. . . . .	[N: of decorrelation or non-stationarity, e.g. minimising lagged cross-correlations] [N0704]
G06K9/62B4N3	. . . . .	[N: enforcing sparsity or involving a domain transformation] [N1205]
G06K9/62B4N3T	. . . . . .	[N: characterised by a domain transformation] [N1205]
G06K9/62B4N4	. . . . .	[N: overcoming non-stationarity or permutations (using non-stationarity for separation G06K9/62B4N3)] [N1205]
G06K9/62B4P	. . . .	[N: based on an approximation criterion, e.g. principal component analysis] [N0501]
G06K9/62B4P1	. . . . .	[N: nonlinearly, e.g. embedding a manifold in a Euclidean space (principal

curves G06K9/62B4T)] [N0704]

G06K9/62B4S	. . . .	[N: based on a sparsity criterion, e.g. with an overcomplete basis (specific for source separation G06K9/62B4N3; pictorial communication involving matching pursuit H04N7/26Z14)] [N1205]
G06K9/62B4T	. . . .	[N: based on a criterion of topology preservation, e.g. multidimensional scaling, self-organising maps] [N0704]
G06K9/62B4T1	. . . . .	[N: involving differential geometry, e.g. embedding of pattern manifold] [N0704]
G06K9/62B5	. . .	[N: User interactive design (G06K9/62B10F1 takes precedence); Environments; Tool boxes] [N1205]
G06K9/62B5H	. . . .	[N: Interactive pattern learning with a human teacher] [N1205]
G06K9/62B6	. . .	[N: Determining representative reference patterns, e.g. averaging or distorting patterns; Generating dictionaries, e.g. user dictionaries] [N9506]
G06K9/62B7	. . .	[N: Obtaining sets of training patterns; Bootstrap methods, e.g. bagging, boosting] [N9506] [C0502]
G06K9/62B7C	. . . .	[N: characterised by the organisation or the structure of the process, e.g. boosting cascade (feature selection by floating search G06K9/62B3S)] [N1205]
G06K9/62B7U	. . . .	[N: characterised by the incorporation of unlabelled data, e.g. multiple instance learning [MIL], semi-supervised techniques using expectation-maximisation [EM] or na#ve labelling (EM techniques G06K9/62B1P3; validation with "oracles" G06K9/62B10F1) [N1205]
G06K9/62B9	. . .	[N: Selecting classification rules] [N9809]
G06K9/62B10	. . .	[N: partitioning the feature space] [N0503]
G06K9/62B11	. . .	[N: Validation, performance evaluation or active pattern learning techniques] [N1205]
G06K9/62B11F	. . . .	[N: based on the feedback of a supervisor (relevance feedback in information retrieval G06F17/30)] [N1205]
G06K9/62B11F1	. . . . .	[N: the supervisor being an automated "intelligent" module, e.g. "intelligent oracle"] [N1205]
G06K9/62B11S	. . . .	[N: based on a specific statistical test] [N1205]
G06K9/62C	. .	[N: Classification techniques] [N0704]
G06K9/62C1	. . .	[N: relating to the classification paradigm, e.g. parametric or non-parametric approaches] [N0704]
G06K9/62C1B	. . . .	[N: based on the distance between the decision surface and training patterns lying on the boundary of the class cluster, e.g. support vector machines] [N0704]
G06K9/62C1D	. . . .	[N: based on distances between the pattern to be recognised and training or reference patterns] [N0704]
G06K9/62C1D1	. . . . .	[N: based on distances to prototypes] [N0704]
G06K9/62C1D1C	. . . . . .	[N: based on distances to cluster centroïds] [N0704]
G06K9/62C1D1C1	. . . .	{7 dots} [N: Smoothing the distance, e.g. Radial Basis Function Networks] [N0704]
G06K9/62C1D1R	. . . . . .	[N: based on distances to neighbourhood prototypes, e.g. Restricted Coulomb Energy Networks] [N0704]
G06K9/62C1D2	. . . . .	[N: based on distances to closest patterns, e.g. nearest neighbour classification] [N0704]
G06K9/62C1P	. . . .	[N: based on a parametric (probabilistic) model, e.g. based on Neyman-Pearson lemma, likelihood ratio, Receiver Operating Characteristic

(ROC) curve plotting a False Acceptance Rate (FAR) versus a False Reject Rate (FRR) (segmentation of touching or overlapping patterns involving probabilistic approaches G06K9/34; image connectivity analysis involving probabilistic approaches, e.g. Markov Random Fields techniques, G06K9/46A3; segmentation involving probabilistic approaches for general image processing G06T7/00S4)] [N0704] [C0810]

G06K9/62C1P1	. . . . .	[N: Bayesian classification] [N0704]
G06K9/62C2	. . .	[N: relating to the number of classes] [N0704]
G06K9/62C2M	. . . .	[N: Multiple classes (hierarchical organisation G06K9/62B8)] [N0704]
G06K9/62C2M2	. . . . .	[N: Piecewise classification, i.e. whereby each classification requires several discriminant rules] [N0704]
G06K9/62C2M2A	. . . . . .	[N: Tree-organised sequential classifiers] [N1205]
G06K9/62C2S	. . . .	[N: Single class perspective, e.g. one-against-all classification; Novelty detection; Outlier detection] [N0704]
G06K9/62C3	. . .	[N: relating to the decision surface] [N0704]
G06K9/62C3L	. . . .	[N: Linear, e.g. hyperplane] [N0704]
G06K9/62C3N	. . . .	[N: Non-linear, e.g. polynomial classifier (G06K9/62C2S takes precedence; classifier with multiple radial basis functions G06K9/62C1D1C1)] [N0704]
G06K9/62F	. .	[N: Fusion techniques, i.e. combining data from various sources, e.g. sensor fusion (bootstrap techniques, e.g. boosting G06K9/62B7; data unmixing G06K9/62B4N; image matching G06K9/64; fusion of acoustic speaker inputs G10L17/00B8M)] [N0704]
G06K9/62F1	. . .	[N: of input or preprocessed data (imaging spectrometers G01J3/28D; image fusion in general and biomedical image fusion G06T5/50; processing and conversion of colour signals H04N1/46)] [N0704]
G06K9/62F2	. . .	[N: of extracted features] [N0704]
G06K9/62F3	. . .	[N: of classification results, e.g. of classification results related to same input data (G06K9/62B7 takes precedence)] [N0704]
G06K9/62F3M	. . . .	[N: of classification results relating to different input data, e.g. multimodal recognition] [N0704]
G06K9/62G	. .	[N: Graphical models, e.g. Bayesian networks (probabilistic networks per se G06N7/00P)] [N0310]
G06K9/62G1	. . .	[N: Markov models and related models, e.g. semi-Markov models; Markov random fields; networks embedding Markov models (segmentation of touching or overlapping patterns involving probabilistic approaches G06K9/34; image connectivity analysis involving probabilistic approaches, e.g. Markov Random Fields, G06K9/46A3; application of Markov models to acoustic speech recognition G10L15/00; segmentation involving probabilistic approaches for general image processing G06T7/00S4)] [C0810]
G06K9/62P	. .	[N: Statistical pre-processing, e.g. techniques for normalisation or restoring missing data] [N1205]
G06K9/64	. .	using simultaneous comparisons or correlations of the image signals with a plurality of references, e.g. resistor matrix [N1205]
G06K9/64B	. . .	[N: using a resistor matrix] [N1205]
G06K9/66	. . .	references adjustable by an adaptive method, e.g. learning
G06K9/68	. .	using sequential comparisons of the image signals with a plurality of references [N: in which the sequence of the image signals or the references is relevant], e.g. addressable memory
G06K9/68A	. . .	[N: Dividing the references in groups prior to recognition, the recognition taking place in steps; Selecting relevant dictionaries] [N9506] [C9809]

G06K9/68A2   . . . . .   [N: according to the graphical properties] [N9809]

G06K9/68A2A   . . . . . .   [N: Alphabet recognition, e.g. Latin, Kanji, Katakana] [N9809]

G06K9/68A2F   . . . . . .   [N: Font recognition] [N9809]

G06K9/68A2P   . . . . . .   [N: Discrimination between machine-print, hand-print and cursive writing] [N9809]

G06K9/68A3   . . . . .   [N: according to the linguistic properties, e.g. English, German] [N9809]

G06K9/68B   . . .   [N: Involving plural approaches, e.g. verification by template match; resolving confusion among similar patterns, e.g. O & Q (G06K9/68A takes precedence)]

G06K9/68B1   . . . .   [N: Coarse/fine approaches, e.g. resolution of ambiguities, multiscale approaches [N9809] [C0704]

G06K9/68C   . . .   [N: Syntactic or structural pattern recognition, e.g. symbolic string recognition]

G06K9/68C1   . . . .   [N: Syntactic analysis, e.g. using a grammatical approach (syntactic image representation G06K9/46S1)] [N0704]

G06K9/68C2   . . . .   [N: Graph matching (graphical image representation G06K9/46S2)] [N0704]

G06K9/70   . . .   the selection of the next reference depending on the result of the preceding comparison [N: contains no documents]

G06K9/72   . .   using context analysis based on the provisionally recognized identity of a number of successive patterns, e.g. a word

G06K9/72L   . . .   [N: Lexical context (G06K9/00W2L takes precedence)] [N9809]

G06K9/72S   . . .   [N: Syntactic or semantic context, e.g. balancing] [N9809]

G06K9/74   .   Arrangements for recognition using optical reference masks (optical analogue correlation G06E3/00; [N: (arrangements for optically extracting non-holistic features, e.g. optical wedge-ring detectors, G06K9/58)]) [C0704]

G06K9/74E   . .   [N: using frequency domain filters, e.g. Fourier masks implemented on spatial light modulators (spatial light modulators per se G02B26/00, G02F)] [N0704]

G06K9/74E1   . . .   [N: characterised by the kind of filter] [N0704]

G06K9/74E1P   . . . .   [N: the filter being related to phase processing, e.g. phase-only filters] [N0704]

G06K9/74E1S   . . . .   [N: the filter being related to the combination of filters, e.g. synthetic discriminant filters] [N0704]

G06K9/74S   . .   [N: using spatial domain filters, e.g. joint transform correlators] [N0704]

G06K9/76   . .   using holographic masks

G06K9/78   .   Combination of image acquisition and recognition functions

G06K9/80   .   Combination of image preprocessing and recognition functions

G06K9/82   . .   using optical means in one or both functions

G06K11/00   **Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signal** (combined with character or pattern recognition G06K9/00; feelers for copying devices on machine tools B23Q35/00; arrangements for measuring areas G01B; measuring force G01L; adapted as input devices to computers G06F3/00; systems for transmitting the position of an object with respect to a predetermined reference system, e.g. tele-autographic system, G08C21/00)

[N: **WARNING**
This group and its subgroups are no longer used for the classification of new documents

as from 1 January 2006. Documents relating to methods and arrangements for input to a computer are classified under G06F3/033 and G06F3/041
]

G06K11/02	.	Automatic curve followers, [N: i.e. arrangements in which an exploring member or beam is forced to follow the curve]
G06K11/04	. .	using an auxiliary scanning pattern
G06K11/06	.	Devices for converting the position of a manually operated writing or tracing member into an electrical signal [N: (not used, see G06F3/033Z4)][C0309]

G06K13/00 **Conveying record carriers from one station to another, e.g. from stack to punching mechanism** (transport devices in general B65G; handling thin or filamentary material in general B65H)

G06K13/02	.	the record carrier having longitudinal dimension comparable with transverse dimension, e.g. punched card
G06K13/04	. .	Details, e.g. flaps in card-sorting apparatus
G06K13/05	. . .	Capstans; Pinch rollers
G06K13/06	. .	Guiding cards; Checking correct operation of card-conveying mechanisms
G06K13/063	. . .	Aligning cards
G06K13/067	. . .	Checking presence, absence, correct position, or moving status of cards
G06K13/07	. .	Transporting of cards between stations
G06K13/073	. . .	with continuous movement
G06K13/077	. . .	with intermittent movement; Braking or stopping movement
G06K13/08	. .	Feeding or discharging cards
G06K13/08A	. . .	[N: using an arrangement for ejection of an inserted card] [N1111]
G06K13/08A2	. . . .	[N: the ejection arrangement utilizing a push bar for manipulation by hand in order to eject the inserted card] [N1111]
G06K13/08A2A	. . . . .	[N: the push bar comprising a pivotable push button] [N1111]
G06K13/08A4	. . . .	[N: the ejection arrangement being of the push-push kind] [N1111]
G06K13/08A6	. . . .	[N: the ejection arrangement comprising a slide, carriage or drawer] [N1111]
G06K13/08A8	. . . .	[N: the ejection arrangement using a heart-shaped cam] [N1111]
G06K13/08B	. . .	[N: from or back into the same magazine (automatic card files G06K17/00B)]
G06K13/08C	. . .	[N: using an arrangement for locking the inserted card] [N1111]
G06K13/08C2	. . . .	[N: the locking arrangement comprising a notch in the card and a complementary locking means in the card reading station] [N1111]
G06K13/08C4	. . . .	[N: the locking arrangement being of the rotate-slide and lock type, such as e.g. common in mobile phones] [N1111]
G06K13/08E	. . .	[N: using an arrangement for keeping the feeding or insertion slot of the card station clean of dirt, or to avoid feeding of foreign or unwanted objects into the slot] [N1111]
G06K13/08E2	. . . .	[N: the arrangement comprising a shutter for blocking at least part of the card insertion slot] [N1111]

G06K13/08E2A	. . . . .	[N: the shutter arranged to open only if the record carrier has been authenticated to enter the insertion slot] [N1111]
G06K13/08E4	. . . .	[N: the arrangement comprising a size filter for filtering out only cards having the proper size] [N1111]
G06K13/08E6	. . . .	[N: the arrangement comprising means for cleaning the card upon insertion] [N1111]
G06K13/10	. . .	from magazine to conveying arrangement
G06K13/103	. . . .	using mechanical means
G06K13/107	. . . .	using pneumatic means
G06K13/12	. . .	from conveying arrangement to magazine
G06K13/14	. . .	Card magazines, e.g. pocket, hopper (card magazines in general B42F)]
G06K13/16	. .	Handling flexible sheets, e.g. cheques
G06K13/18	.	the record carrier being longitudinally extended, e.g. punched tape (features of interest apart from data processing G11B; magnetic-tape drive G11B15/00)
G06K13/20	. .	Details
G06K13/22	. . .	Capstans; Pinch rollers
G06K13/24	. .	Guiding of record carriers; Recognising end of record carrier
G06K13/26	. .	Winding-up or unwinding of record carriers; Driving of record carriers
G06K13/28	. . .	continuously
G06K13/30	. . .	intermittently

| **G06K15/00** | | **Arrangements for producing a permanent visual presentation of the output data** [N: , e.g. computer output printers] (printing or plotting combined with another operation, e.g. with conveying, G06K17/00) [N: (construction of printing heads B41J2/00; special arrangements for scanning and reproduction of pictures involving their transmission, e.g. facsimile H04N1/00; for photocomposing B41B19/00)] [C1207] |

[N: **WARNING**
[N1207]Groups G06K15/18 and subgroups and G06K15/40 and subgroups do not correspond to former or future IPC groups. Concordance ECLA : IPC for these groups is as follows: - G06K15/18 : G06K15/02 - G06K15/40 : G06K15/00
]

G06K15/00D	.	[N: Interacting with the operator] [N1204]
G06K15/00D2	. .	[N: only locally] [N1204]
G06K15/00D4	. .	[N: only remotely, e.g. at a host computer (dedicated computer interfaces to print systems G06F3/12A)] [N1204]
G06K15/02	.	using printers [C1207]
G06K15/02D	. .	[N: Adaptations for printing on specific media] [N1204]
G06K15/02D2	. . .	[N: for printing on continuous media, e.g. tapes] [N1204]
G06K15/02D4	. . .	[N: for printing on transparent media] [N1204]
G06K15/02D6	. . .	[N: for printing on segmented surfaces, e.g. sticker sheets, label rolls] [N1204]
G06K15/02F	. .	[N: Simulating output on another printing arrangement, e.g. proof output (matching two or more picture signal generators or two or more picture reproducers H04N1/60F3)] [N1204]
G06K15/02F2	. . .	[N: introduction of proof output parameters] [N1204]

G06K15/02H	.	.	[N: Test patterns and calibration (arrangements for controlling or analysing printing mechanisms of typewriters or selective printing units B41J29/393 takes precedence; colour correction using test pattern analysis in general H04N1/60F2)] [N1204]
G06K15/02T	.	.	[N: by thermal printers]
G06K15/02T2	.	.	.	[N: using optical beams]
G06K15/04	.	.	by rack-type printers
G06K15/06	.	.	by type-wheel printers
G06K15/07	.	.	.	by continuously-rotating-type-wheel printers, e.g. rotating-type-drum printers
G06K15/08	.	.	by flight printing with type font moving in the direction of the printed line, e.g. chain printers
G06K15/10	.	.	by matrix printers [N: (G06K15/02T takes precedence)]
G06K15/10B	.	.	.	[N: using ink jet print heads] [N9607]
G06K15/10B2	.	.	.	.	[N: Multipass or interlaced printing] [N9607]
G06K15/10B2B	.	.	.	.	.	[N: Mask selection] [N9607]
G06K15/12	.	.	by photographic printing [N: e.g. by laser printers]
G06K15/12A	.	.	.	[N: involving the fast moving of an optical beam in the main scanning direction (G06K15/12C to G06K15/12K take precedence)]
G06K15/12A4	.	.	.	.	[N: Intensity control of the optical beam (G06K15/12A8 takes precedence)]
G06K15/12A4B	.	.	.	.	.	[N: by feedback]
G06K15/12A5	.	.	.	.	[N: Detection, control or error compensation of scanning velocity or position, e.g. synchronisation (G06K15/12A8 takes precedence)]
G06K15/12A8	.	.	.	.	[N: Resolution control, enlarging or reducing, edge or detail enhancement]
G06K15/12B	.	.	.	[N: involving the fast moving of a light beam in two directions (G06K15/12C to G06K15/12K take precedence)]
G06K15/12C	.	.	.	[N: using a cathode-ray tube or an optical-fibre tube]
G06K15/12D	.	.	.	[N: simultaneously exposing more than one point]
G06K15/12D4	.	.	.	.	[N: on one main scanning line]
G06K15/12D4L	.	.	.	.	.	[N: using an array of light sources, e.g. a linear array]
G06K15/12D4M	.	.	.	.	.	[N: using an array of light modulators, e.g. a linear array]
G06K15/12D6	.	.	.	.	[N: on more than one main scanning line]
G06K15/12D6L	.	.	.	.	.	[N: using an array of light sources]
G06K15/12D6L4	.	.	.	.	.	.	[N: using a moving array]
G06K15/12D6M	.	.	.	.	.	[N: by light beam splitting]
G06K15/12F	.	.	.	[N: adding two or more images, e.g. texturing, shading, form overlay]
G06K15/12G	.	.	.	[N: generating or processing printable items, e.g. characters]
G06K15/12H	.	.	.	[N: Holographic scanning (in general G02B)]
G06K15/12K	.	.	.	[N: Colour printing]
G06K15/12P	.	.	.	[N: using a particular photoreceptive medium]
G06K15/14	.	.	by electrographic printing, e.g. xerography; by magnetographic printing [N: (G06K15/12 takes precedence)]
G06K15/16	.	.	Means for paper feeding or form feeding
G06K15/18	.	.	[N: Conditioning data for presenting it to the physical printing elements (for data conditioning specific to a type of printer see subgroups G06K15/02T to G06K15/14; print job translation or parsing G06F3/12A4M20)] [N1204]

G06K15/18A   . . .   [N: Input data handling means] [N1204]

G06K15/18A2   . . . .   [N: Receiving generic data, e.g. fonts, colour palettes] [N1204]

G06K15/18A4   . . . .   [N: Receiving particular commands] [N1204]

G06K15/18A4A   . . . . .   [N: Receiving printer configuration commands] [N1204]

G06K15/18A4B   . . . . .   [N: Receiving job control commands] [N1204]

G06K15/18A4B2   . . . . . .   [N: relating to the print image preparation] [N1204]

G06K15/18A4B4   . . . . . .   [N: relating to the printing process] [N1204]

G06K15/18A6   . . . .   [N: Receiving print data characterized by its formatting, e.g. particular page description languages] [N1204]

G06K15/18A6A   . . . . .   [N: including high level document description only] [N1204]

G06K15/18A6A2   . . . . . .   [N: Page description language recognition] [N1204]

G06K15/18A6B   . . . . .   [N: including print-ready data, i.e. data already matched to the printing process] [N1204]

G06K15/18A6C   . . . . .   [N: Receiving print data in mixed format] [N1204]

G06K15/18A8   . . . .   [N: Buffers] [N1204]

G06K15/18A10   . . . .   [N: Adaptations for accepting data from more than one source (managing interfaces G06K15/40C)] [N1204]

G06K15/18A10A   . . . . .   [N: for a same print job] [N1204]

G06K15/18A12   . . . .   [N: Sending feedback on the reception process to the data source, e.g. indication of full buffer] [N1204]

G06K15/18A14   . . . .   [N: Analysing the received data before processing] [N1204]

G06K15/18A14A   . . . . .   [N: for evaluating the resources needed, e.g. rasterizing time, ink, paper stock] [N1204]

G06K15/18A16   . . . .   [N: Adapting the print data to an output condition, e.g. object trapping (trapping on rasterized data H04N1/58)] [N1204]

G06K15/18A16A   . . . . .   [N: Object trapping] [N1204]

G06K15/18B   . . .   [N: Accessing generic data, e.g. fonts] [N1204]

G06K15/18B2   . . . .   [N: characterized by the kind of storage accessed] [N1204]

G06K15/18B2A   . . . . .   [N: Removable memories, e.g. font cartridges] [N1204]

G06K15/18B4   . . . .   [N: characterized by the format of the data] [N1204]

G06K15/18B4A   . . . . .   [N: Compressed bitmaps] [N1204]

G06K15/18B4B   . . . . .   [N: Outline coded data] [N1204]

G06K15/18C   . . .   [N: Transforming generic data] [N1204]

G06K15/18C2   . . . .   [N: Rasterization] [N1204]

G06K15/18C2A   . . . . .   [N: from outline-coded data] [N1204]

G06K15/18C2B   . . . . .   [N: from skeleton-coded data] [N1204]

G06K15/18C2C   . . . . .   [N: from compressed bitmap data] [N1204]

G06K15/18C4   . . . .   [N: Geometric transformations, e.g. on raster data] [N1204]

G06K15/18C4A   . . . . .   [N: Changing size or raster resolution] [N1204]

G06K15/18C6   . . . .   [N: Anti-aliasing raster data (G06K15/18C4A takes precedence)] [N1204]

G06K15/18C8   . . . .   [N:Depleting generic raster data, e.g. characters (G06K15/18C4A takes precedence)] [N1204]

G06K15/18C8A   . . . . .   [N: with provisions for image feature conservation or enhancement, e.g. character edge] [N1204]

G06K15/18D	. . .	[N: Generation of the printable image] [N1204]
G06K15/18D2	. . . .	[N: using an intermediate representation, e.g. a list of graphical primitives] [N1204]
G06K15/18D2A	. . . . .	[N: parted in a plurality of segments per page] [N1204]
G06K15/18D4	. . . .	[N:involving combining data of different types] [N1204]
G06K15/18D4A	. . . . .	[N: Combining raster data of different resolutions] [N1204]
G06K15/18D4B	. . . . .	[N: Combining raster data and graphic primitives] [N1204]
G06K15/18D6	. . . .	[N: characterized by its workflow] [N1204]
G06K15/18D6A	. . . . .	[N: involving parallel processing in the same printing apparatus] [N1204]
G06K15/18D6B	. . . . .	[N: involving data processing distributed amongst different data processing apparatus] [N1204]
G06K15/18D6C	. . . . .	[N: taking account of feedback from an output condition, e.g. available inks, time constraints] [N1204]
G06K15/18D6D	. . . . .	[N: taking account of a limited available memory space or rasterization time] [N1204]
G06K15/18D6D2	. . . . . .	[N: by rasterizing in sub-page segments] [N1204]
G06K15/18D6D4	. . . . . .	[N: by reducing the depth of some image elements' definition] [N1204]
G06K15/18D6D6	. . . . . .	[N: by compressing the rasterized print data] [N1204]
G06K15/18E	. . .	[N: Post-processing of the composed and rasterized print image (Scanning, transmission or reproduction of documents H04N1/00)] [N1204]
G06K15/18E2	. . . .	[N: for fitting to an output condition, e.g. paper colour or format] [N1204]
G06K15/18E4	. . . .	[N: Depleting the print image] [N1204]
G06K15/18E4A	. . . . .	[N: with provisions for image features conservation or enhancement, e.g. conservation or enhancement of zone edges] [N1204]
G06K15/18E6	. . . .	[N: Image enhancement] [N1204]
G06K15/18E6A	. . . . .	[N: Increasing spatial resolution; Anti-aliasing] [N1204]
G06K15/18E6A2	. . . . . .	[N: with provisions for treating some of the print data differently] [N1204]
G06K15/18E6B	. . . . .	[N: Decreasing spatial resolution; Dithering] [N1204]
G06K15/18E6B2	. . . . . .	[N: with provisions for treating some of the print data differently] [N1204]
G06K15/18E6C	. . . . .	[N: Adjusting colours (Image colour correction or control for documents in general H04N1/60)] [N1204]
G06K15/18E6C2	. . . . . .	[N: with provisions for treating some of the print data differently] [N1204]
G06K15/18E6D	. . . . .	[N: Halftoning (halftoning of still images in general H04N1/405, H04N1/52)] [N1204]
G06K15/18E8	. . . .	[N: involving operator action] [N1204]
G06K15/18E8A	. . . . .	[N: for choosing a level of output quality] [N1204]
G06K15/18E8B	. . . . .	[N: for modifying the layout of a document] [N1204]
G06K15/18E10	. . . .	[N: Storage of the print image data or of parts thereof] [N1204]
G06K15/18E10A	. . . . .	[N: Storage of image elements as generic data] [N1204]
G06K15/18E12	. . . .	[N: Merging with other data] [N1204]
G06K15/18E12A	. . . . .	[N: adding a background, e.g. a pattern] [N1204]
G06K15/18E12A2	. . . . . .	[N: adding a digitally readable background pattern] [N1204]

G06K15/18E12B . . . . . [N: Form merging] [N1204]

G06K15/18F . . . [N: Outputting the image data to the printing elements] [N1204]

G06K15/18F2 . . . . [N: by means of alternately addressed storages] [N1204]

G06K15/18F4 . . . . [N: while merging on-the-fly with other data] [N1204]

G06K15/18F6 . . . . [N: while adapting the order of the data to the printing elements' arrangement, e.g. row-to-column conversion] [N1204]

G06K15/22 . using plotters [M1207]

G06K15/22B . . [N: using optical plotters]

G06K15/40 . [N: Details not directly involved in printing, e.g. machine management, management of the arrangement as a whole or of its constitutive parts (computer driven print job management G06F3/12A4M)] [N1204]

G06K15/40A . . [N: Sharing resources or data with other data processing systems; Preparing such data (for distributed printing G06K15/18D6B)] [N1204]

G06K15/40A2 . . . [N: Sharing memory space] [N1204]

G06K15/40A4 . . . [N: Sharing generic data descriptions, e.g. fonts, colour palettes, rasterized objects] [N1204]

G06K15/40A6 . . . [N: Sharing data concerning the arrangement's configuration or current state (for managing optional units G06K15/40B)] [N1204]

G06K15/40B . . [N: Managing optional units, e.g. sorters, document feeders] [N1204]

G06K15/40B2 . . . [N: handling the outputted documents, e.g. staplers, sorters] [N1204]

G06K15/40B2A . . . . [N: Managing mailboxes] [N1204]

G06K15/40B2B . . . . [N: Managing other optional outputs, e.g. collators, staplers] [N1204]

G06K15/40C . . [N: Managing the interface to the data source, e.g. choosing an interface for data reception] [N1204]

G06K15/40C2 . . . [N: Choosing a data source, e.g. on a network] [N1204]

G06K15/40D . . [N: Managing power consumption, e.g. standby mode (computer driven power saving management for a printer G06F3/12A2R6; power saving in a data processing device in general G06F1/32)] [N1204]

G06K15/40D2 . . . [N: Wake-up procedures (start-up of a laser scanner G06K15/12A5)] [N1204]

G06K15/40E . . [N: Managing print media, e.g. determining available sheet sizes (feeding means G06K15/16)] [N1204]

G06K15/40F . . [N: Managing marking material, e.g. checking available colours] [N1204]

G06K15/40F2 . . . [N: Determining remaining quantities of ink or toner] [N1204]

G06K15/40G . . [N: Handling exceptions, e.g. faults (computer driven error handling and recovery for a printer G06F3/12A4D8)] [N1204]

G06K15/40G2 . . . [N: Handling paper jams] [N1204]

G06K15/40G4 . . . [N: Handling power failures] [N1204]

G06K15/40H . . [N: Secure printing (computer driven secure printing G06F3/12A4M10)] [N1204]

G06K17/00 **Methods or arrangements for effecting co-operative working between equipments covered by two or more of the preceding main groups, e.g. automatic card files incorporating conveying and reading operations**

G06K17/00B . [N: Automatic card files incorporating selecting, conveying and possibly reading and/or writing operations]

G06K17/00B1   . .   [N: with random access selection of a record carrier from the card-file, e.g. the carriers are suspended on the selection device which in part of the card magazine]

G06K17/00B2   . .   [N: with sequential access selection of a record carrier from the card-file, e.g. relative movement between selecting device and card-file]

G06K17/00B3   . .   [N: with more than one selection steps, e.g. selection of a record carrier from a selected compartment of a compartmented storage (storage devices for articles B65G1/04B)]

G06K17/00C   .   [N: Selecting or retrieving of images by means of their associated code-marks, e.g. coded microfilm or microfiche (microfilm reading G03B21/11; computers therefor G06F17/30; teaching devices G09B5/02; accessing record carriers G11B27/00A; static digital stores using optical elements G11C13/04; intermediate storage of facsimile picture signals H04N1/21)]

G06K17/00C1   . .   [N: for images on filmstrips]

G06K17/00G   .   [N: arrangements or provisious for transferring data to distant stations, e.g. from a sensing device ("transfer between computer elements G06F13/00"; data-transmission H04L)]

G06K17/00G1   . .   [N: the arrangement consisting of a wireless interrogation device in combination with a device for optically marking the record carrier] [N1202]

G06K17/00G3   . .   [N: the arrangement being specially adapted for wireless interrogation of grouped or bundled articles tagged with wireless record carriers] [N1202]

G06K17/00K   .   [N: Apparatus for automatic testing and analysing marked record carriers, used for examinations of the multiple choice answer type (teaching apparatus working with questions and answers G09B7/00)]

G06K19/00   **Record carriers for use with machines and with at least a part designed to carry digital markings** (record carriers adapted for controlling specific machines, see the appropriate subclass for the machine, e.g. B23Q, D03C, G10F, H04L; form printing B41; file cards B42F19/00; record carriers in general G11)

G06K19/00H   .   [N: the record carrier comprising an arrangement to facilitate insertion into a holding device, e.g. an arrangement that makes the record carrier fit into an etui or a casing (ticket holders A45C11/18)] [N1204]

G06K19/02   .   characterised by the selection of materials, e.g. to avoid wear during transport through the machine

G06K19/02A   . .   [N: Processes or apparatus therefor]

G06K19/02C   . .   [N: the material being flexible or adapted for folding, e.g. paper or paper-like materials used in luggage labels, identification tags, forms or identification documents carrying RFIDs (methods for testing the genuineness of valuable papers, e.g. banknotes or passports G07D7/00; constructional features of booklets and the like B42D)] [N1202]

G06K19/02E   . .   [N: the material being suitable for use as a textile, e.g. woven-based RFID-like labels designed for attachment to laundry items (markings attached to laundry items in general D06F93/00)] [N1202]

G06K19/04   .   characterised by the shape

G06K19/04K   . .   [N: Constructional details (G06K19/06 takes precedence)] [N9701]

G06K19/04K2   . . .   [N: the record carrier having a form factor of a credit card and including a small sized disc, e.g. a CD or DVD (disc shaped data carriers in general, see G11B20/00 and G11B23/00)] [N1202]

G06K19/04K2A	. . . .	[N: comprising galvanic contacts for contacting an integrated circuit chip thereon] [N1202]
G06K19/04K2C	. . . .	[N: the record carrier being of the non-contact type, e.g. RFID, and being specially adapted for attachment to a disc e.g. a CD or DVD] [N1202]
G06K19/04K4	. . .	[N: the record carrier being shaped as a coin or a gambling token] [N1202]
G06K19/04K6	. . .	[N: the record carrier being shaped as a key] [N1202]
G06K19/06	.	characterised by the kind of the digital marking, e.g. shape, nature, code
G06K19/06C	. .	[N: with optically detectable marking (G06K19/063, G06K19/08 take precedence)]
G06K19/06C1	. . .	[N: one-dimensional coding]
G06K19/06C1B	. . . .	[N: using bar codes]
G06K19/06C3	. . .	[N: multi-dimensional coding]
G06K19/06C5	. . .	[N: Constructional details] [N9701]
G06K19/06C5A	. . . .	[N: the marking comprising a further embedded marking, e.g. a 1D bar code with the black bars containing a smaller sized coding] [N1202]
G06K19/06C5B	. . . .	[N: the marking being at least partially represented by holographic means (holographic marking in general, see G06K19/16)] [N1202]
G06K19/06C5C	. . . .	[N: the marking containing means for error correction] [N1202]
G06K19/06C5E	. . . .	[N: the marking being based on nano-particles or micro beads] [N1202]
G06K19/06C5G	. . . .	[N: the marking being constructed out of a plurality of similar markings, e.g. a plurality of barcodes randomly oriented on an object] [N1202]
G06K19/06C5K	. . . .	[N: the marking being embedded in a human recognizable image, e.g. a company logo with an embedded two-dimensional code] [N1202]
G06K19/06C5M	. . . .	[N: the marking being simulated using a light source, e.g. a barcode shown on a display or a laser beam with time-varying intensity profile] [N1202]
G06K19/06C5P	. . . .	[N: the marking having been punched or cut out, e.g. a barcode machined in a metal work-piece] [N1202]
G06K19/06C5Q	. . . .	[N: the marking comprising a target pattern, e.g. for indicating the center of the bar code or for helping a bar code reader to properly orient the scanner or to retrieve the bar code inside of an image] [N1202]
G06K19/06C5S	. . . .	[N: the marking being selective to wavelength, e.g. color barcode or barcodes only visible under UV or IR (methods or arrangements for sensing record carriers using a selected wavelength, see G06K7/12)] [N1202]
G06K19/06C5U	. . . .	[N: the marking being of the rewritable type, e.g. thermo-chromic barcodes] [N1202]
G06K19/06C5W	. . . .	[N: the marking being relief type, e.g. three-dimensional bar codes engraved in a support] [N1202]
G06K19/06C5Y	. . . .	[N: the marking being a concentric barcode] [N1202]
G06K19/06C5Z	. . . .	[N: the marking having a feature size being smaller than can be seen by the unaided human eye] [N1202]
G06K19/06M	. .	[N: with magnetically detectable marking]
G06K19/06M2	. . .	[N: Constructional details] [N9701]
G06K19/06M4	. . .	[N: the magnetic marking being emulated] [N1204]
G06K19/063	. .	the carrier being marginally punched or notched, e.g. having elongated slots
G06K19/067	. .	Record carriers with conductive marks, printed circuits or semiconductor circuit elements, e.g. credit or identity cards [N: also with resonating or responding marks without active components]
G06K19/067Q	. . .	[N: with resonating marks] [N9701]

G06K19/067Q1	. . . .	[N: the resonating marks being of the surface acoustic wave [SAW] kind (SAW devices per se H03H9/64)] [N1202]
G06K19/067Q3	. . . .	[N: the record carrier being programmable] [N1202]
G06K19/07	. . .	with integrated circuit chips
G06K19/07A	. . . .	[N: at least one of the integrated circuit chips comprising an arrangement for power management] [N1202]
G06K19/07A2	. . . . .	[N: the arrangement including a battery] [N1202]
G06K19/07A2A	. . . . . .	[N: the battery being onboard of a handheld device, e.g. a smart phone or PDA] [N1202]
G06K19/07A2C	. . . . . .	[N: the battery being rechargeable, e.g. solar batteries] [N1202]
G06K19/07A2E	. . . . . .	[N: the battery being connected to a power saving arrangement] [N1202]
G06K19/07A2G	. . . . . .	[N: the battery being replaceable] [N1202]
G06K19/07A4	. . . . .	[N: the arrangement being capable of collecting energy from external energy sources. e.g. thermocouples, vibration, electromagnetic radiation (G06K19/07A2 takes precedence)] [N1202] [M1207]
G06K19/07A4A	. . . . . .	[N: the source being electromagnetic or magnetic] [N1204]
G06K19/07A4A2	. . . .	{7 dots} [N: the source being an interrogation field] [N1204]
G06K19/07A4A4	. . . .	{7 dots} [N: the source being a field other than an interrogation field, e.g. WLAN, cellular phone network] [N1204]
G06K19/07A4C	. . . . . .	[N: the source being mechanical or acoustical] [N1204]
G06K19/07A6	. . . . .	[N: the arrangement being capable of triggering distinct operating modes or functions dependent on the strength of an energy or interrogation field in the proximity of the record carrier (active means for hindering electromagnetic reading or writing G06K19/073A2C)] [N1202]
G06K19/07A8	. . . . .	[N: the arrangement including a power charge pump] [N1202]
G06K19/07A9	. . . . .	[N: the arrangement including means to regulate power transfer to the integrated circuit] [N1204]
G06K19/07E	. . . .	[N: at least one of the integrated circuit chips comprising a sensor or an interface to a sensor] [N1202]
G06K19/07E2	. . . . .	[N: the sensor being capable of sensing environmental conditions such as temperature history or pressure] [N1202]
G06K19/07E4	. . . . .	[N: the sensor being of the biometric kind, e.g. fingerprint sensors (fingerprint sensors in general, see G06K9/00; biometric access-control systems in general, see G07C9/00)] [N1202]
G06K19/07G	. . . .	[[N: at least one of the integrated circuit chips comprising an arrangement for application selection, e.g. an acceleration sensor or a set of radio buttons (application selection on smart cards using pure software control, see G07F7/10)] [N1202]
G06K19/07P	. . . .	[N: the record carrier comprising a plurality of integrated circuit chips] [N1202]
G06K19/07P2	. . . . .	[N: the plurality of chips mutually cooperating so as to represent itself to the world as a single entity] [N1202]
G06K19/07R	. . . .	[N: comprising an arrangement for testing the record carrier] [N1204]
G06K19/07T	. . . .	[N: the record carrier comprising an arrangement for non-contact communication, e.g. wireless communication circuits on transponder cards, non-contact smart cards or RFIDs] [C1202]
G06K19/07T2	. . . . .	[N: the arrangement being a circuit for communicating at a plurality of frequencies, e.g. for managing time multiplexed communication over at

least two antennas of different types] [N1202]

G06K19/07T4	. . . . .	[N: the arrangement being a circuit for emulating a plurality of record carriers, e.g. a single RFID tag capable of representing itself to a reader as a cloud of RFID tags] [N1202]
G06K19/07T6	. . . . .	[N: the arrangement including a circuit for tuning the resonance frequency of an antenna on the record carrier] [N1202]
G06K19/07T8	. . . . .	[N: the arrangement being a circuit facilitating integration of the record carrier with a hand-held device such as a smart phone of PDA] [N1202]
G06K19/07T9	. . . . .	[N: the arrangement being an optical or sound-based communication interface] [N1202]
G06K19/073	. . . .	Special arrangements for circuits, e.g. for protecting identification code in memory (protection against unauthorised use of computer memories G06F12/14)
G06K19/073A	. . . . .	[N: Means for preventing undesired reading or writing from or onto record carriers] [N0612]
G06K19/073A2	. . . . . .	[N: by hindering electromagnetic reading or writing (jamming of communication, counter-measures H04K3/00; secret communication H04K1/00)] [N0612] [C1204]
G06K19/073A2A	. . . .	{7 dots} [N: Passive means, e.g. Faraday cages (Faraday-type protection of electric circuits in general H05K9/00)] [N0612]
G06K19/073A2C	. . . .	{7 dots} [N: Active means, e.g. jamming or scrambling of the electromagnetic field] [N0612]
G06K19/073A4	. . . . . .	[N: by activating or deactivating at least a part of the circuit on the record carrier, e.g. ON/OFF switches] [N0612]
G06K19/073A4A	. . . .	{7 dots} [N: by biometrically sensitive means, e.g. fingerprint sensitive (fingerprint sensors in general G06K9/00A; biometrically activated access control G07C9/00B6D)] [N0612]
G06K19/073A6	. . . . . .	[N: by preventing analysis of the circuit, e.g. dynamic or static power analysis or current analysis] [N0612]
G06K19/073A8	. . . . . .	[N: by detecting tampering with the circuit (tampering detection for semi-conductor circuits in general H01L23/58)] [N0612]
G06K19/073A8A	. . . .	{7 dots} [N: with deactivation or otherwise incapacitation of at least a part of the circuit upon detected tampering] [N0612]
G06K19/073A8A2	. . . .	{8 dots} [N: the incapacitated circuit being part of an antenna] [N0612]
G06K19/077	. . . .	Constructional details, e.g. mounting of circuits in the carrier
G06K19/077A	. . . . .	[N: the record carrier comprising an interface suitable for human interaction] [N1202]
G06K19/077A2	. . . . . .	[N: the interface being visual] [N1202]
G06K19/077A2A	. . . .	{7 dots} [N: the visual interface being a single light or small number of lights capable of being switched on or off, e.g. a series of LEDs] [N1202]
G06K19/077A2C	. . . .	{7 dots} [N: the visual interface being a display, e.g. LCD or electronic ink] [N1202]
G06K19/077A4	. . . . . .	[N: the interface being a keyboard] [N1202]
G06K19/077A6	. . . . . .	[N: the interface being an audio interface] [N1202]
G06K19/077A8	. . . . . .	[N: the interface, upon reception of an interrogation signal, being capable of signaling to indicate its position to a user or a detection device] [N1202]
G06K19/077A9	. . . . . .	[N: the interface being used to indicate that the record carrier is active,

e.g. a blinking light to indicate that the record carrier is busy communicating with a secondary device or busy computing] [N1202]

G06K19/077C   . . . . .   [N: the record carrier comprising means for customization, e.g. being arranged for personalization in batch] [N1202]

G06K19/077D   . . . . .   [N: the record carrier being manufactured in a continuous process, e.g. using endless rolls] [N1202]

G06K19/077E   . . . . .   [N: Physical layout of the record carrier] [N1202]

G06K19/077E2   . . . . . .   [N: the record carrier being multilayered, e.g. laminated sheets (flat articles in general, see B32B37/00)] [N1202]

G06K19/077E3   . . . . . .   [N: the record carrier being at least partially made by a molding process (molding in general B29C45/14)] [N1202]

G06K19/077E4   . . . . . .   [N: the record comprising means for indicating first use, e.g. a frangible layer] [N1202]

G06K19/077E5   . . . . . .   [N: the record carrier comprising means for protection against impact or bending, e.g. protective shells or stress-absorbing layers around the integrated circuit] [N1202]

G06K19/077E6   . . . . . .   [N: the record carrier comprising means to protect itself against external heat sources] [N1202]

G06K19/077E7   . . . . . .   [N: the record carrier having a housing or construction similar to well-known portable memory devices, such as SD cards, USB or memory sticks (housings for electrical equipment in general, see H05K5/02)] [N1202]

G06K19/077E8   . . . . . .   [N: the record carrier containing at least one further contact interface not conform ISO-7816] [N1202]

G06K19/077E9   . . . . . .   [N: the record carrier comprising means for protecting against electrostatic discharge] [N1202]

G06K19/077G   . . . . .   [N: the record carrier consisting of two or more mechanically separable parts] [N1202]

G06K19/077G2   . . . . . .   [N: comprising a first part capable of functioning as a record carrier on its own and a second part being only functional as a form factor changing part, e.g. SIM cards type ID 0001, removably attached to a regular smart card form factor] [N1202]

G06K19/077G4   . . . . . .   [N: comprising a first part operating as a regular record carrier and a second attachable part that changes the functional appearance of said record carrier, e.g. a contact-based smart card with an adapter part which, when attached to the contact card makes the contact card function as a non-contact card] [N1202]

G06K19/077K   . . . . .   [N: External electrical contacts]

G06K19/077M   . . . . .   [N: Mounting details of integrated circuit chips]

G06K19/077M2   . . . . . .   [N: at least one of the integrated circuit chips being mounted as a module] [N1202]

G06K19/077T   . . . . .   [N: the record carrier being capable of non-contact communication, e.g. constructional details of the antenna of a non-contact smart card] [C1202]

G06K19/077T2   . . . . . .   [N: arrangements for connecting the integrated circuit to the antenna] [N1202]

G06K19/077T2A   . . . .   {7 dots} [N: using an interposer] [N1202]

G06K19/077T2C   . . . .   {7 dots} [N: the connection being galvanic] [N1202]

G06K19/077T2E   . . . .   {7 dots} [N: the connection being non-galvanic, e.g. capacitive] [N1202]

G06K19/077T3   . . . . . .   [N: arrangements for adhering the record carrier to further objects or

living beings, functioning as an identification tag] [N1202]

G06K19/077T3A	. . . .	{7 dots} [N: the adhering arrangement being a layer of adhesive, so that the record carrier can function as a sticker] [N1202]
G06K19/077T3D	. . . .	{7 dots} [N: the adhering arrangement making the record carrier wearable, e.g. having the form of a ring, watch, glove or bracelet (record carriers for insertion in the human body for medical purposes A61B19/00; record carriers adapted for attachment to animals A01K11/00)] [N1202]
G06K19/077T3E	. . . .	{7 dots} [N: the adhering arrangement making the record carrier attachable to a tire (tire temperature or pressur control arrangements, see B60C23/00)] [N1202]
G06K19/077T4	. . . . . .	[N: comprising at least a second communication arrangement in addition to a first non-contact communication arrangement] [N1202]
G06K19/077T4A	. . . .	{7 dots} [N: the first and second communication means being two different antennas types, e.g. dipole and coil type, or two antennas of the same kind but operating at different frequencies] [N1202]
G06K19/077T4C	. . . .	{7 dots} [N: the further communication means being a galvanic interface, e.g. hybrid or mixed smart cards having a contact and a non-contact interface] [N1202]
G06K19/077T5	. . . . . .	[N: the record carrier comprising means for minimising adverse effects on the data communication capability of the record carrier, e.g. minimising Eddy currents induced in a proximate metal or otherwise electromagnetically interfering object] [N1202]
G06K19/077T7	. . . . . .	[N: Antenna details (antennas for wireless devices, e.g. RFID tags, in general H01Q1/22)] [N1202]
G06K19/077T7A	. . . .	{7 dots} [N: the antenna being on-chip] [N1202]
G06K19/077T7C	. . . .	{7 dots} [N: the antenna being of the inductive type] [N1202]
G06K19/077T7C1	. . . .	{8 dots} [N: the inductive antenna being a coil] [N1202]
G06K19/077T7C1A	. . . .	{9 dots} [N: the coil being fabricated in a winding process] [N1204]
G06K19/077T7C1C	. . . .	{9 dots} [N: the coil being planar] [N1204]
G06K19/077T7C3	. . . .	{8 dots} [N: the inductive antenna consisting of a plurality of coils stacked on top of one another] [N1202]
G06K19/077T7E	. . . .	{7 dots} [N: the antenna being of the HF type, such as a dipole] [N1202]
G06K19/077T7G	. . . .	{7 dots} [N: the antenna being of the capacitive type] [N1202]
G06K19/077T7J	. . . .	{7 dots} [N: the antenna being foldable or folded] [N1202]
G06K19/077T7K	. . . .	{7 dots} [N: the antenna adapted for extending in three dimensions] [N1202]
G06K19/077T7M	. . . .	{7 dots} [N: the record carrier comprising a booster or auxiliary antenna in addition to the antenna connected directly to the integrated circuit] [N1202]
G06K19/077T8	. . . . . .	[N: arrangements on the record carrier to allow stacking of a plurality of similar record carriers, e.g. to avoid interference between the non-contact communication of the plurality of record carriers] [N1202]
G06K19/077T9	. . . . . .	[N: part of the antenna or the integrated circuit being adapted for rupturing or breaking, e.g. record carriers functioning as sealing devices for detecting not-authenticated opening of containers (electronic seals G09F3/03)] [N1202]
G06K19/08	. .	using markings of different kinds [N: or more than one marking of the same kind] in the same record carrier, e.g. one marking being sensed by optical and the other by

magnetic means

G06K19/08C	. . .	[N: Constructional details] [N9701]
G06K19/08C2	. . . .	[N: with markings consisting of randomly placed or oriented elements, the randomness of the elements being useable for generating a unique identifying signature of the record carrier, e.g. randomly placed magnetic fibers or magnetic particles in the body of a credit card] [N1202]
G06K19/10	. . .	at least one kind of marking being used for authentication, e.g. of credit or identity cards ([N: identification cards not to be read by a machine B42D15/10]; verification of coded identity or credit cards in mechanisms actuated by them G07F7/12; [N: printed identity or similar identification-bearing cards not for use with a machine B42D15/10]) [C1101]
G06K19/12	. . . .	the marking being sensed by magnetic means
G06K19/14	. . . .	the marking being sensed by radiation
G06K19/14A	. . . . .	[N: at least one of the further markings being adapted for galvanic or wireless sensing, e.g an RFID tag with both a wireless and an optical interface or memory, or a contact type smart card with ISO 7816 contacts and an optical interface or memory] [N1204]
G06K19/16	. . . .	the marking being a hologram or diffraction grating
G06K19/18	. . . .	Constructional details

G06K21/00   **Information retrieval from punched cards designed for manual use or handling by machine** (G06K19/00 takes precedence)**; Apparatus for handling such cards, e.g. marking or correcting**

G06K21/00D	.	[N: Selecting of marginally notched cards (card filling arrangements B42F17/00)]
G06K21/00D1	. .	[N: the selected cards being displaced laterally relative to the remaining stationary card-file]
G06K21/00D2	. .	[N: the selected cards being restrained and the remaining card-file being laterally displaced]
G06K21/02	.	in which coincidence of markings is sensed mechanically, e.g. by needle
G06K21/04	.	in which coincidence of markings is sensed optically, e.g. peek-a-boo system
G06K21/06	.	Apparatus or tools adapted for slotting or otherwise marking information-retrieval cards (tools for perforating in general B26F)
G06K21/08	.	Apparatus or tools for correcting punching or slotting errors [N: and regeneration of record carriers]
G06K21/08B	. .	[N: for punched tapes]