Report on the activity in the framework of the European Inventor Network

To be sent to:
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Name of the alumnus who implemented the activity

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Short description of the activity

As part of the "Digital School" project, an innovative educational initiative was implemented, focusing on integrating 3D QR codes and augmented reality (AR) into the curriculum. This activity aimed to revolutionize the learning environment by making educational content highly interactive and engaging, significantly reducing paper usage, and fostering a strong connection between digital innovation and environmental sustainability. Students were actively involved in creating and utilizing these advanced digital tools, transforming traditional lessons into dynamic, immersive experiences.

Date and place of the activity

- **April 28, 2025** – Agricultural Vocational School "Kliment Timiryazev", Sandanski (In-school demonstration and workshop on creating and interacting with 3D QR codes in various subjects)
- **May 18, 2025** – Participation in the conference “QR Code”, Blagoevgrad (Public presentation and demonstration of the project's achievements in 3D QR codes and AR to a wider audience of educators and stakeholders)
- **June 19, 2025** – Agricultural Vocational School "Kliment Timiryazev", Sandanski (Follow-up session and exhibition of student-developed AR projects and digital learning materials, showcasing enhanced interactive textbooks)

Audience (number and age of the participants)

Total: 39 participants, including students, teachers, external guests, and representatives from the Regional Education Authority – Blagoevgrad. Age group: 14–17 years (students from 8th to 11th grade)

Outcomes and achievement

- **Developed and actively implemented a comprehensive 3D QR code and augmented reality (AR) system** for diverse educational purposes. This included creating interactive content accessible via smartphones, transforming static textbook pages into dynamic multimedia experiences, and developing virtual tours for historical and scientific topics.
- **Created a demonstrably dynamic and interactive learning environment**, significantly enhancing student engagement and creativity through hands-on experience with cutting-edge digital tools. This moved students from passive recipients to active creators of content.
- **Achieved a significant reduction in paper usage** through the widespread digitization of educational materials and the successful introduction of electronic textbooks embedded with 3D QR codes, aligning with sustainable digital practices.
- **Successfully organized multiple STEM-focused events** centered around digital innovation and maintained an active robotics club, where students further explored the practical applications of digital technologies.
- **Raised environmental awareness among students** by showcasing how digital transformation can contribute to sustainability and promoting eco-friendly educational practices.

"This project exemplifies how technology, creativity, and environmental responsibility can converge to shape the future of education, making learning more immersive and sustainable."

Recommendations

- **Expand the initiative on a national level** by organizing inter-school competitions for innovative digital and AR-based educational projects, fostering a nationwide culture of digital literacy and invention.
- **Secure enhanced support from local and international STEM organizations** to provide mentorship and access to advanced prototyping equipment, enabling students to develop even more sophisticated digital solutions.
- **Develop a centralized online platform** for schools to share successful implementations of interactive digital tools and innovative ecological solutions, creating a collaborative knowledge-sharing network.
- **Encourage the strategic inclusion of advanced digital and green technologies in school curricula** through hands-on project-based assignments and structured collaborations with technology businesses, preparing students for future challenges.

Attachments:

- Photos from the activities and demonstrations, showcasing students interacting with 3D QR codes and AR content.
- Short videos presenting the interactive projects developed by students, demonstrating the AR experience.
- Feedback and testimonials from participants and jury members, highlighting the impact of the initiative.

- Project concept document and presentation slides, detailing the technical implementation and educational approach.

Any supporting documents (such as photographs, testimonials or other relevant materials) that help illustrate the activity's impacts and effectiveness should be sent to mchopinaud@epo.org. These supporting documents might be posted on the European Inventor Network webpage.