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Advancing Forensic Science Education: Interactive Immersive Virtual Reality CSI Walkthrough for Enhanced Teamwork and Learning

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Abstract:

The Department of Chemistry at City University of Hong Kong has recently launched a new forensic chemistry stream aimed at equipping students with a strong foundation, comprehensive knowledge, and professional training in the field of forensic chemistry. One of the key courses in this stream is CHEM2809/GE2334 "Science vs Crime," which is led by Prof. Maria Babak. A significant component of this course involves an interactive CSI walkthrough exercise where student teams are tasked with investigating a simulated crime scene, collecting forensic evidence, and conducting investigations. To ensure the confidentiality of crime scene details during the exercise, it is essential to restrict communication between student teams, resulting in the requirement for all teams to perform the exercise on the same day. However, the significant number of students enrolled in the module, coupled with the necessity for the crime scene clean-up between teams, imposes limitations on the amount of time that students can spend at the crime scene. This limitation does not fully align with the expectations of both the course leader and the students themselves. Moreover, the existing setup is constrained by the types of crimes that can be realistically recreated, such as inability to mock up blood stain patterns.

To address these constraints, we propose to incorporate Virtual Reality (VR) technology into the course, allowing for a VR-based crime scene investigation experience. The use of VR CSI simulator eliminates the limitations imposed by physical space and time constraints, allowing students to explore and learn in a more flexible and immersive manner. Through the use of VR, students can explore the crime scene, interact with objects, and employ forensic tools. The suggested type of simulation encourages collaboration and communication among students, fostering teamwork and critical thinking skills.

The objective of this proposal is to create a virtual platform that provides students with access to a lifelike CSI simulation where they can practice and reinforce CSI techniques, complementing their classroom-based learning. This platform has been thoughtfully designed to be inclusive and adaptable, catering to various courses beyond the initial scope of CHEM2809. Its versatile nature allows integration into other courses of the forensic stream, such as CHEM4051 Forensic Chemistry.