Project Mandate

Topic: Supporting Students with Metaverse or Virtual Reality

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Context

Digital transformation in education has accelerated due to the pandemic and the rise of remote and hybrid learning. Despite the availability of online platforms like Zoom or MS Teams, students report decreased engagement, lower retention, and reduced interaction in virtual environments. Additionally, the absence of hands-on experience in technical or practical subjects creates significant learning gaps.

Metaverse and Virtual Reality technologies are emerging as promising solutions to these challenges. They enable immersive, interactive, and collaborative environments that can simulate real-life scenarios, support practical training, and foster community, even when physical presence is not possible.

Problem

Students in remote and hybrid learning environments often feel disconnected and less engaged compared to traditional, in-person classes [1]. This lack of interaction with peers and instructors contributes to lower academic motivation and performance. Furthermore, conventional e-learning tools such as static presentations, recorded lectures, or documents fail to provide the hands-on, practical experience needed in fields like medicine, engineering, or natural sciences. This makes it difficult for students to fully grasp complex concepts or develop technical skills [2]. Additionally, first-year students frequently struggle with adapting to the university environment, finding classrooms and offices, and integrating into the student community. These issues combined result in reduced learning effectiveness, decreased student satisfaction, and higher dropout rates.

Solution

Create a centralized Metaverse and Virtual Reality-based learning platform for university event management that:

- **Virtual Classrooms & Labs**: Simulate real-world environments for hands-on learning.
- **Immersive Campus Tours**: Help first-year students navigate the university and integrate into the community.
- **Social & Collaborative Spaces**: Support peer interaction and group work to reduce isolation.
- **Interactive Instructor Sessions**: Enable real-time mentoring and support through VR.
- **Gamified Learning**: Boost engagement and retention with simulations and interactive scenarios.
- **Practical Learning**: Allowing students to participate in simulations, 3D explorations, and real-world scenario-based learning.

References

[1] Exploring Student and Teacher Experiences in Hybrid Learning Environments: Does Presence Matter? - https://link.springer.com/article/10.1007/s42438-021-00274-0

[2] The impact of virtual reality on practical skills for students in science and engineering education: a meta-analysis - https://www.researchgate.net/publication/381518839_The_impact_of_virtual_reality_on_practical_skills_for_students_in_science_and_engineering_education_a_meta-analysis