

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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ASTROLEAP: THE MANARA INITIATIVE UNLEASHING SPACE DREAMS

Abstract

Aerospace industry is inclusive for all, anyone should be able to be part of it, regardless of their majors. The Middle East space sector is playing a crucial role in the space economy, in recent years the space ecosystem gained rapid growth in the region, by 2032, it is expected that annual investment in space activities will nearly double to 2.7B\$. With this huge growth, it becomes crucial for next generations to be prepared for the upcoming opportunities, as well as learning importance of employing their skills and knowledge to keep up with space project advancements, one of the most effective ways to achieve this is by developing outreach educational activities, creating awareness efforts and support every individual to get involved with this sector. In this study, "Manara" project stands for lighthouse a program that will light the path for beneficiaries toward space industry, a virtual reality tool is developed with personalized learning methodology targeted for Jordanian students and supporting Arabic language, with purpose of providing gamified educational content, virtual educational astronautics camps, varied space games and puzzles and virtual interactive labs. One of the objectives of the tool is simplify complex space and aviation concepts using gamified and interactive virtual reality content, This work will be part of huge outreach program where virtual reality will be utilized as foundation of establishment space hands-on educational efforts in Jordan considering the absence of advanced space lab, educational facilities or specific space curriculum, furthermore catching interest of public and getting involved. A visual system architecture of the tool will be presented in the study, additionally, the outreach program detailed plan and project phases, the measured outcomes for the pilot phase of the project will be shown as it is tested on initial groups of STEM educational centers, schools in Jordan. Expected outcome of the program is establishing national and international collaborations that bridges more opportunities, capacity building that depends on market needs, furthermore awareness efforts and providing educational material for virtual simulations tools to be accessible for Jordanian students. In conclusion, This program is the first Jordanian space initiative for both educational and entertainment purposes in addition to providing the ability to interact with various space instrument parts and other tools in virtual interactive labs to foster a long-term passion for space, facilitate a deeper understanding of space and aviation, achieving the maximum benefit for all ages students.