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LOW COST OPEN SOURCE HARDWARE AND SOFTWARE TECHNOLOGIES, INTEGRATED AS A PAYLOAD IN A HIGH ALTITUDE BALLOON, A TOOL FOR STEAM EDUCATION IN PARAGUAY, A CASE STUDY.

Abstract

The aim of this paper is to give a description of one of the current GNSS technology application activities in Paraguay. In this particular case, GNSS was integrated to a High Altitude Balloon (HAB) Payload. Main purpose of these activities is to support STEAM education in rural communities by encouraging students to design, build, test, operate and data process HAB Payloads. This was effectively achieved through GNSS technology since the recovery of this type of stratospheric Payloads were critical. Open source hardware were utilized to obtain data from GPS module. The learning of fundamentals of this type of technology as well as, the study of the state of the art, the wiring of this module to a microcontroller board, the decoding programming to interpret positioning data were all valuable learning experience to students. As a result of the success of this program, in supporting STEAM education, made the local government initiate the process to include Space Education as part of the curriculum initiatives.