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Author: Mr. Lawrence Trevor
Australia

AN INTERACTIVE OUTREACH PROGRAM FOR OPPORTUNITY CLASS STUDENTS ON SATELLITES AND SATELLITE COMMUNICATIONS

Abstract

Presented are the results of an outreach program between Nova Systems (Nova), Canberra, and South Queanbeyan Public School (SQPS), Queanbeyan. The program was a result of the aligned goals of the two parties. SQPS hosts an Opportunity Class (OC) program, which exposes gifted and talented Year 5 and 6 students to advanced topics in mathematics and science. Nova, as part of its Corporate and Social Responsibility policy engages school age students with topics in their line of work to encourage the next generation of engineers.

The program consisted of a two-hour interactive session between two staff members from Nova and twenty students from SQPS, and focused on satellites and satellite communications. Students were encouraged to ask questions during the activities to provide a more active learning experience.

Firstly, the students were asked a series of questions to gauge the student's initial levels of knowledge and engagement. Then, a small sit-down presentation was given which gave some fundamental information on satellites, their history, operation and applications. The focus of this section was to relate satellite theory to real world applications of satellites that the students may be familiar with.

Next, tablets with satellite orbit augmented reality software were given to small groups of the children. This software allowed the children to direct the tablet at the sky and provide a visualisation of satellite orbits overhead. The students were then directed to note some of the names of the satellites and then search the internet for information on the satellites. This information included the country of origin, its orbit and its use.

Following this, a small antenna linked to a laptop was installed outside the classroom. Previously, the pass of a weather satellite with a functioning analogue downlink was found over the school to coincide with the program. The antenna was pointed to the satellite and a real-time weather photo was downlinked to the laptop via installed software. This allowed the students to witness the applications of satellites for a purpose that was familiar to all of them.

The session concluded by presenting the students with links to the resources used in the sessions to allow independent learning after program completion. Another survey was conducted with the class to assess the increase in knowledge and engagement of the students.