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Florida Space Grant Consortium, under the auspices of NASA, conducts annual competitions among Florida colleges and universities, for development of satellite hardware and software. Students of the Computer Science program at Florida Gulf Coast University have traditionally participated in these competitions, developing their projects in senior design courses and presenting their accomplishments at annual meetings of the competition finalists.



This year the project concerns the development of a small satellite, under the Florida Small Satellite Program (FloSat), to be launched in 2013. FGCU is participating in the design and implementation of the communications and telemetry subsystem. The subsystem will provide ground computers with the data from all of the other subsystems in the satellite.

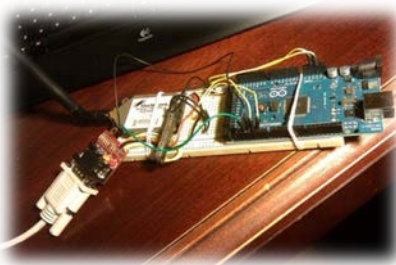


Figure 2: Physical View of the Telemetry Board Design

The solution is based on the combined use of the Arduino microcontroller board, equipped with an RS232 serial interface to communicate with the flight computer, and MaxStream/Digi wireless 9Xtend RF module to communicate with another 9Xtend module at the ground station. Thus, design must fit into a 10cm x 10cm x 10cm cube satellite space and not exceed the total weight of 1 kg.

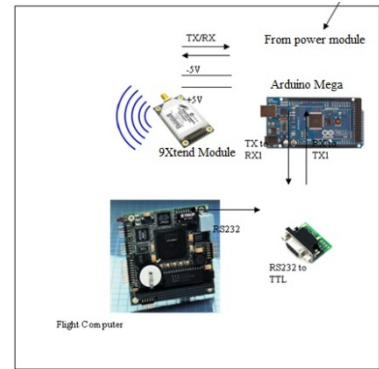


Figure 1: Logical View of the Telemetry Subsystem

Figure 3: Previous Student Team (2010) that developed the groundwork (left to right: Tim Bennett, Jaime Zabala, Michael Lekon, and Dr. Janusz Zalewski, Faculty mentor)



Figure 4: Creator of the 2011 version of the Telemetry Board, Jorge Ocañas Jr. (right) with Team mentor, Dr. Zalewski (second from right) and project fans, Tim Bennett and Joe Gehring

