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Space Vehicle Simulator

The space vehicle simulator will provide a convenient interface for controlling space missions. Its main features will include:

- RFID-enabled login.

- Motion-controlled interface.

- Real-time trajectory plotting using a conventional physics model.

- Dynamic execution of mission objectives.

It will be implemented with at least three FPGA's, one master terminal and two slave terminals. The master terminal computes the state of the simulation and processes the input data it receives from the slave terminals. The master terminal also relays state data to the slave terminals. Additionally, the type of mission and type of vehicle are selected using the interface of the master terminal. Finally, the slave terminals can be used by either crew member (Commander or Mission Specialist) to control their respective mission controls. The function of the terminal depends on the user who logs in, through the use of a RFID tag.

The Commander will be able to choose destinations on the solar system, while the Mission Specialist executes mission objectives based on a timeline.

Additional features may include voice-command control of the interface, wireless communication between the accelerometers and the terminal, and/or wireless communication between terminals.