

Consider a hypothetical scenario where you are required to design the software of a Cansat.

The mission requirements are as follows-:

1. Upon activation on the launchpad, the On-Board Computer (OBC) initializes all subsystems including Electrical Power, Sensors, Camera, Telemetry, and Parachute Mechanism.
2. The satellite enters an idle mode to conserve power, awaiting further commands from the ground station for testing or launch.
3. During testing phases, mock data is gathered from sensors and the camera, while the telemetry equipment is validated through test signal transmissions.
4. Upon successful testing, a readiness signal is relayed to the ground station before initiating a system reboot.
5. When the rocket launches, the satellite detects the motion and begins transmitting a continuous beacon signal to indicate operational status.
6. As the rocket ascends, the satellite monitors for the attainment of maximum height, signaling the activation of cameras and instruments.
7. During descent, sensor readings are collected in real-time, and a video feed is captured and stored on an SD card.
8. At an altitude of 200 meters, the parachute is deployed, and a location signal is initiated to aid recovery efforts.
9. Upon landing and stabilization, all instruments and the camera are deactivated, while location and beacon signals persist until recovery and power-off.
10. The satellite remains operational until recovery, facilitating post-mission analysis and data retrieval.
11. A function `update_values`, will provide you with the following sensor data-
 - a. Latitude
 - b. Longitude
 - c. Altitude
 - d. Time (sec,min,hour)
 - e. Acceleration (in x,y,z)
 - f. Pressure
 - g. Temperature

Your task is to define states for the satellite, and conditions for switching between states. Create a state table using straight binary representation for states, as discussed in the probation session, and include parameters where necessary. Ensure the number of states is neither excessive nor insufficient for the task at hand.

After doing the same, you are required to write a pseudocode to implement the flight plan in C.

Upload all your files on a folder on GDrive, we will roll out a form to submit the GDrive link

Save the f as <name>_obc_t2