Nakuja project

Recovery team

24th Jan 2023

Last week’s objectives

- Onboarding of new members
- N2 flight software review
- N2 parachute ejection mechanism review
- Parachute ejection software review

This week's objectives

- Efficient communication method research
- Develop a method to write data to flash memory/ EEPROM
- Design a ground station/flight computer circuit board to test the communication between the two
- Develop an encoding scheme to send data from the flight computer to the ground station
- Design and assemble parachute ejection mechanism

Efficient communication system

- We choose Wi-Fi for communication between flight computer and the ground station
- Ground equipment exist
- We can tweak the transmission power to extend the range of the Wi-Fi link
- Parameters to be measured are:

1. Gain Improvement on ground
2. Transmission power improvement on the flight computers
3. Develop the total power needed for such a transmission to take place

Develop a method to write data to flash memory/ EEPROM

- Due to previous issues with SD card, we agreed to test data logging on EEPROM and on flash memory
- We acquired an EEPROM ,the research and tests are being done on EEPROM to verify the viability of using it.
- Though we are more likely to go with flash memory because it has a larger storage capacity compared to EEPROM
- The issue with EEPROM is low capacity and limited write times, which is a caveat because of high sample rates during flight

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Test board circuit

- We need to be 100% sure that the flight states during flight are being received as needed
- This will help us know when we have reached the EJECTION state
- Test board circuit is a simple network between two ESP32s on the ground to simulate the connection between the flight computer and ground station

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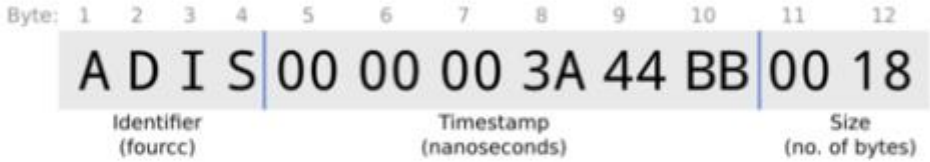
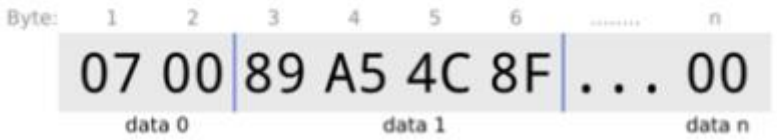
Encoding scheme

Header:



Container:



More efficient
Smaller than JSON
Faster
Language independent
Easy to scale up in case we need more data