CanSat Meeting Notes

Yasha Duncan-Wilson

October 13, 2024

Miscellania

Present: Ashley, Nela, Murtaza, Yasha, Lucas, Lewis, Tom
Apologies: Mary.

Announcements

The following announcements were made:

- an update on funding - progress is being made, primarily thanks to Ashley. Sponsorship from corporate groups is promising.
- Carlos has left the team due to other commitments, with apologies.

Discussed

Power Management

From **Lucas**:

- reverse polarity protection for the battery on the board should be easy to implement
- power buffering to protect the MCU is high priority, even at the cost of extra mass or complexity
- buzzer power and control may be a challenge.

Questions:

- **Yasha:** can we isolate the servos too? Faulty servo believed to have fried boards last year
- **Yasha:** can we play chiptunes on the buzzer?

Structural Concept

From **Lewis**:

- a structural concept was presented - four 6mm aluminium rods screwed into plates at either end
- mass of this should be approx 90g at full 350mm length

Questions:

- **Tom**: could this design be modularised to allow easy access to electronics et cetera?
  - **Ashley**: how modular can electronics be made?
  - **Yasha**: could headphone jacks or other standardised ports be used?
  - **Nela**: could we get custom cables made?
- **Yasha**: Could we use threaded rod and nuts rather than screws?

FSM Block Diagram

From **Nela**:

- a breakdown of what a finite state machine is and how it works
- a discussion of the states we will likely use in our codebase

Questions:

- **Yasha**: discussion of states required by spec

Autogyro

From **Tom**:

- autogyro will only have two blades
- a DC motor connected to the shaft could be used to calculate rotation speed
- props can be purchased or made

Questions:

- **Tom**: would the DC motor generate back EMF?
- **Nela**: speccing an encoder for the autogyro will require knowing approximate rotation rate; can we calculate that?
- **Yasha**: props could be forged carbon-fibre or layups on printed core?
- **Ashley**: could props be resin-cast?

Deployable Gearbox

From **Tom**:

- could drive all deployables with two servos and a gearbox

Questions:

- **Yasha**: are you out of your f*!£ing mind?

Further Business

Questions for Ivan

- what should the autogyro rotation rate be measured relative to?
- can we use carbon-fibre on the outside of the container? or is it 3D printed only?

Questions for Szy and Michael

- how did we control buzzer last year?
- do we need multiple PCB designs/software architectures for PDR?

Shopping List

- dev board
- magnetometer (Nela to spec)
- DC motor
- encoders (Nela to spec)