Cansat UK Progress Report 2

GWC Cansat
George Watson's College

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Contents

Chapter 1

Progress Report

1.1 Progress Statement

We have continued along our current plan, working on each section of the project simultaneously in sub-teams. A summary of our progress is shown below:

Team Administration

- A member of our team has dropped out due to personal reasons. In order to maintain our forward momentum, we have taken on an additional member.
- We have recieved three new sponsorships; two have provided us with extra funding surrounding our project, the third company providing us with free custom PCB manufacturing.
- Following our success with using Slack messenger for internal communication and meeting scheduling, we are continuing with using this, further improving this by integrating our team's GitHub repositories with the relevant channels.
- Having sections of our team that have responsibilites for different areas of the cansat development was leading to issues with team members not knowing how the overall project was progressing. The team leaders now collaborate to produce an internal report of progress every 2-3 weeks. This has recieved positive feedback within the team.
- We are continuing to utilise the sponsored licesnces we recieved from TeamGantt to produce weekly gantt charts to ensure that we stay on schedule within each sub-team, in addition to an overall layout of our progress.
- We are continuing to maintain our website, hosted on the domain `gwccansat.com`, in addition to having launched our video blog ('vlog') programme, showing our progress on a weekly basis, leading up to the competition.

Mechanical development

- We continue to work towards having a finalised CAD model. This is dependent upon space requirements of our sensors and custom PCBs, so is still undergoing iterative revisions.
- We have established ideal locations for the communications and GPS antennae, learning from the issues we had in last year's European competition. This involves having an exterior enclosure that will vastly improve communication quality and accuracy of GPS lock.
- Additionally, we are still working towards having a modular compartment for our secondary mission, allowing the cansat to be easily reused for other experiments with minimal physical changes made — a simple case of plugging in and programming the new, relevant sensors.

Electronics design

- Our team hit some budgeting issues, leading us to consider other electronics options — primarily in–house assembly, as an alternative to PCB fabrication. This was recently resolved with the addition of our new sponsors, providing us with free PCB fabrication and more funding.
- We now have a definitive bill of materials (BOM) for electronic components and materials that we will need.
- We also now have an initial schematic design, that is ready to be made into a PCB design, provided that the software team have successfully interfaced and tested all the sensors and the mechanical team have provided ideal locations for the larger components on the PCB.

Software design

- Currently, the project progress is fullcruming off the dependency on testing the sensors from our current design. Hence, we have allocated extra team members and resources to this section.
- We are currently working on testing each individual sensor, to ensure that we are able to interface with them correctly with the current wiring solution and ready to make notes of any required ammendments.
- Additionally, we are able to use elements of last year's code to assist us when creating the final cansat program and base station program.

Secondary mission

- We continue to strive towards having a diamagnetically stabilised levitation exeriment to harvest vibration energy. We have unfortunately run into several technical problems, so are currently still working on having a functional experiment that produces power.
- As a precaution for the secondary mission not working, we have begun brainstorming several other experiments to put in the secondary mission module. This is made easier by our modular experimental compartment in our cansat design.
- We have developed a plan to have multiple experiments ready by the time of the competition, so that we have a backup options in case of failure to prepare the main experiment. It will also allow us to demonstrate the concept of switching the expermental module quickly.