

Group 28
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Team Contract Fulfilment

I. Project Goals

The project's goal is to make a remote trough sensing/monitoring system. Currently, the power subsystem is still under development due to a battery change from 6V NiCd to 3.7V Li-ion for compatibility with MPPT. The solar panel can charge the battery through MPPT. The sensor subsystem is close to fully functional but with one caveat: it may lose the last digit in wireless transmission after some time given the data is a 5-digit integer. With the help of the power-down mode of ATTiny85, the whole system can send the measured time delta at the specified frequency, and costs 0.009A at 5V (which means it will cost lower power at lower voltages). The base station has an efficient message decoding/calculating strategy for 3 troughs, and it is able to promptly display the data on the LCD via I2C. Given the wireless transmission bug is identified and fixed, the goal for the base station is achieved.

II. Expectations

Our expectations at the beginning of the semester were as follows:

- Each member should respond to questions/requests ASAP, preferably in half a day.
- Each member is expected to perform their expected task and duty every week.
- Each member is expected to check in with the team to discuss progress on their task(s).
- Each member is expected to keep a detailed account of their work in their notebooks.
- Each member is expected to finish their tasks on time or ask for help otherwise.

We met these expectations for the entire semester with two exceptions (listed in the team issues section).

For the most part, however, we stayed in constant communication with each other and completed tasks agreed upon.

III. Roles

We agreed at the beginning of the semester that the tasks for each week would be different, and the roles of each member will be decided at each meeting. Each member was to take ownership of different aspects of the project, rather than having one overall Principal Investigator or Record Keeper. We ended up following this model, as each of us took ownership of a different subsystem: microcontroller and sensor - Mark, wireless transmission- Ajay, power- Alina.

IV. Agenda

We planned to compartmentalize the project by setting our own agendas and tasks for ourselves, and then check in with each other at our weekly meetings to check up on each other's progress. However, we ended up working a bit more collaboratively than the individualistic framework we planned. When a decision needed to be made, we made it through consensus and had very little issue with contradicting opinions as everyone was always willing to listen. Lastly, each team member kept their records in their engineering notebook, and we also kept all team materials and assignments organized in our central Google Drive.

V. Team Issues

We had some issues regarding attendance and communication at two different points of the semester. This stemmed from other priorities coming before the class. We dealt with these issues through the responsible parties taking responsibility and verbalizing commitment for the rest of the semester. After missing a TA meeting and not following up with emails sent by our TA, we started to work harder and try to complete the project.