Executive Summary

The GPS data logger solves a simple problem that plagues the market. There are no cheap data loggers that are readily available on the market. Data loggers are at least $100 or more, making them only a purchase for researchers. The GPS data logger bridges the gap by making a cheap yet effective data logger available for anyone wanting to simply log locational data. The GPS data logger is able to record the position data at the time with an accuracy of 3m every 1 minute, and the device is able to run for more than 8 hours.The team approached the issue by first minimizing the project to the most simple parts to save space. The team ended with a microcontroller, GPS module, MicroSD card adapter, and power supply as the main 4 blocks. The key technology of the device is the operation of the GPS module, as well as the power supply to provide sufficient energy for the system. The team used a GPS module that provides a high level of accuracy. Secondly, the team used a power board connected to a 9V battery for power supply, and based on tests, the power supply was able to provide energy for the system to run for 8 hours. The team then began researching their respective parts. The overall timeline can be described as block research, purchasing of devices, testing, troubleshooting, preparation for integration, and integration. The team also made revisions to the PCB that would act as the body of the device, and subsequently made changes to the enclosure. Attached below is the project timeline since the group's creation in January.

There are several lessons the team learned from designing and creating the project. The first issue learned is the issue of capabilities vs. size. Obviously, the larger the microcontroller, the larger its variety of capabilities. The team chose a specific microcontroller with the choice to expand the system's abilities in mind. These expansions ultimately did not occur, making the choice of microcontroller somewhat unnecessary. Instead, the microcontroller with the smallest size yet minimum capabilities needed should've been chosen, and the problem of expanding should've been a future issue. Another issue was the issue of integration. More meetings should've been held to properly integrate the system, rather than doing it only a few times. When the team encounters some difficulties, including technical or communication difficulties, the team should seek more help from their

instructors, as they are always able to provide the best help or lead the team on the right research path.

Topic	Week 11	12	13	14	15	16	17	18	19	20	Finals
WINTER TERM											
Project Redesignation											
Block Distribution											
Block Research											
Block Testing and Research											
Testing, Soldering, Breadboard Research											
Final Testing, PCB Ordering, Block Integration											
Topic	**Week 21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**Finals**
SPRING TERM											
Block Integration, PCB Testing											
PCB Soldering and Integration											
Final Testing											
Final Design Document											
Preparation for EXPO											