



Progress Report

Asana has made strong and positive strides towards completion of the Wireless Weight Distribution Scale. We have been keeping strict adherence to the original milestone and Gantt chart schedules to the best of our abilities. However, we encountered minor obstacles which set us slightly behind. The following document will outline the progress we have made thus far as well as any tasks which remain unfinished.

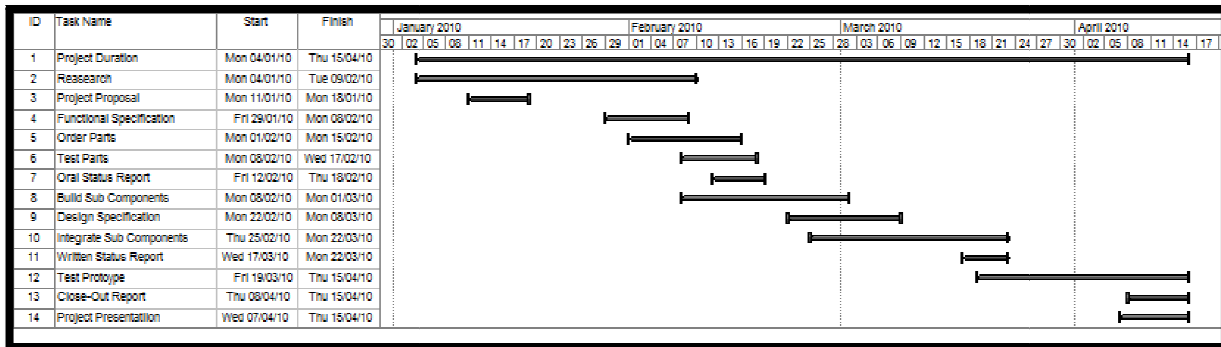


Figure 1: Original Gantt Chart

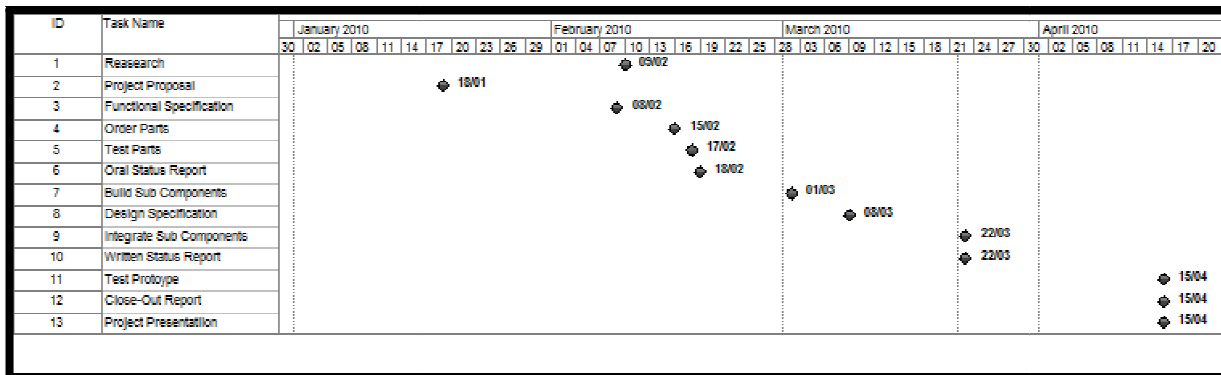


Figure 2: Original Milestone Chart

Requirements Analysis

All of the requirements were already analyzed during the initial research and functional specification sections. The usability of the user interface of the scale and the server software were designed in a manner such that any user would be able to easily operate it. As we approach completion of the test prototype, we will evaluate the ease of use of the scale's operation with greater detail.

System-level Analysis

Currently the team split into two streams consisting of two Electronics Engineering majors and two Computer Engineering majors. Each stream leads the system components pertaining to their area of specialization.

Load Cell Calibration

The calibration of the load cells is already complete. This feature included placing known weights onto an isolated load cell and reading their respective digital value as determined through the analog to digital converter. This process yielded an equation of a line for each load cell which was programmed into the microcontroller to calculate the total mass. This step was critical to the overall accuracy of the system and hence was completed with great caution and attention to detail over several trials.

Using the equations for each load cell, the software loaded onto the microcontroller can accurately detect a mass in kilograms and also display the weight distribution of the mass.

Wireless Module

Currently the wireless module is one of the major system subcomponents that is yet to be configured and tested. We are using the Xbee 802.15.4 to communicate with RZUSBSTICK. The current issue is with creating the virtual COM port when attaching the RZUSBSTICK via USB.

Microcontroller

The microcontroller is functioning properly with the circuitry required to operate external peripherals. These external peripherals include an interrupt generator switch which can wake up the microcontroller from a sleep state, a buzzer which can alert the user to step off the scale and a liquid crystal display module.

Display Module

The display module was successfully interfaced to the microcontroller where it is now used extensively in development to display the digital load cell values. The only steps that remain for the display module is to display the sequence of informative screens and graphical representation of the weight distribution as outlined in the design specifications document. These screens will inform the user of their expected actions and provide a graphical interpretation of the user's centre of balance.

Server Software

The server software has not been implemented yet as the foundation for this subcomponent depends on the successful pairing of the wireless receiver and transmitter. It is necessary to be able to confirm that such a pairing is possible before work can start on the application.

Technical Specification

Asäna has already taken into consideration test cases to verify the functionality of individual subcomponents of the overall system. Furthermore, several system test cases were described in the design specifications which will be tested when the test prototype is complete. The outcomes to these test cases will be discussed in later documentation.

Budget

Currently the project is still under budget. We were awarded \$425.00 from the Engineering Student Society Endowment Fund and have spent exactly \$412.26. The large purchases include a standalone scale, liquid crystal display, microcontroller and wireless module. This leaves us with a meager \$12.74 which will be used to purchase smaller items such as various electronic components and the final enclosure for our proof-of-concept prototype.

Team Dynamics

All of the members of team Asäna are still getting along as expected. Since we have all worked as a team in previous lab groups, we are familiar with each individual's strengths and weaknesses. We meet regularly during planned and unplanned meetings to discuss any and all important matters pertaining to the project.

Action Items

The next actionable item would be to integrate all of the system subcomponents into a single working system. This would lead to the next deliverable on the list which is to test the prototype. The prototype testing will continue until the eventual completion date of the project on April 15th, 2010. During this final stage, corner cases will be discovered and their respective solutions will be implemented.