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Team 20

Lab number 3

Gantt Chart and CoCoMo Estimation

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Version 1.0

By signing below, each group member approves of this document and contributed fairly to its completion.

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On our honors, as students of the University of Virginia, we have neither given nor received unauthorized aid on this assignment.
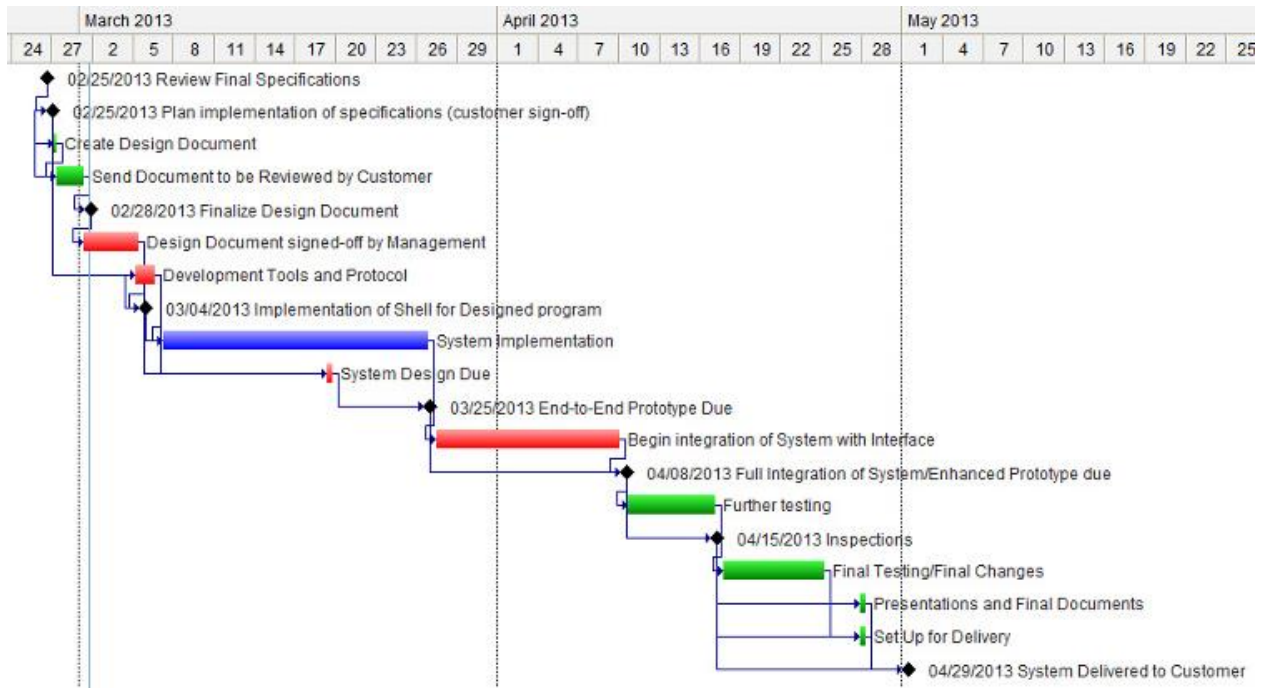
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Gantt Chart

Below is a screenshot of our Gantt chart. The actual file holding our chart is located on our website under the Schedule tab and the heading Gantt Chart.

CoCoMo Estimation

Effort Multipliers

As we completed our CoCoMo estimation, we decided which effort multipliers mattered to our project and which ones did not. If the effort multiplier is not listed below, it was determined to be nominal and carry a value of one which would not affect our CoCoMo estimation.

Required software reliability: high (1.3)

> We decided that our software reliability must be high because if the on board software of the robot is not highly reliable, the robot will not be able to function so reliability is paramount.

Database size: very low (0.9)

> Since our program does not make use of any databases, its influence in our estimation is minimal.

Execution time constraint: very high (1.3)

> The robot must be able to execute commands in real time to allow the user full control over the robot so this effort multiplier is very important.

Main storage constraint: high (1.25)

> Since the robot has a small amount of memory, the main storage constraint is high for our system.

Programmer capability: high capability (0.93)

> For this project, we believe that our programming prowess gives us an advantage with this system and makes the project easier to complete.

PL experience: high (0.92)

> Each of us has a large amount of experience with Java, which is what this project is written in, which gives us an advantage with completing this project.

Using the intermediate organic CoCoMo estimation model and the effort multipliers above, we determined that:

$$EFFORT = \Pi_i \, EM_i * a * (KDL)^b$$

$$KDL = 1.1, \quad a = 3.2, \quad b = 1.05$$

$$EFFORT = 5.74 \text{ man-months}$$

After we compiled this number, we then calculated the total development time by computing

$$TDEV = 2.5 * (EFFORT)^{0.38}$$

$$TDEV = 4.86 \text{ months}$$