

Spring Project Plan Team 520

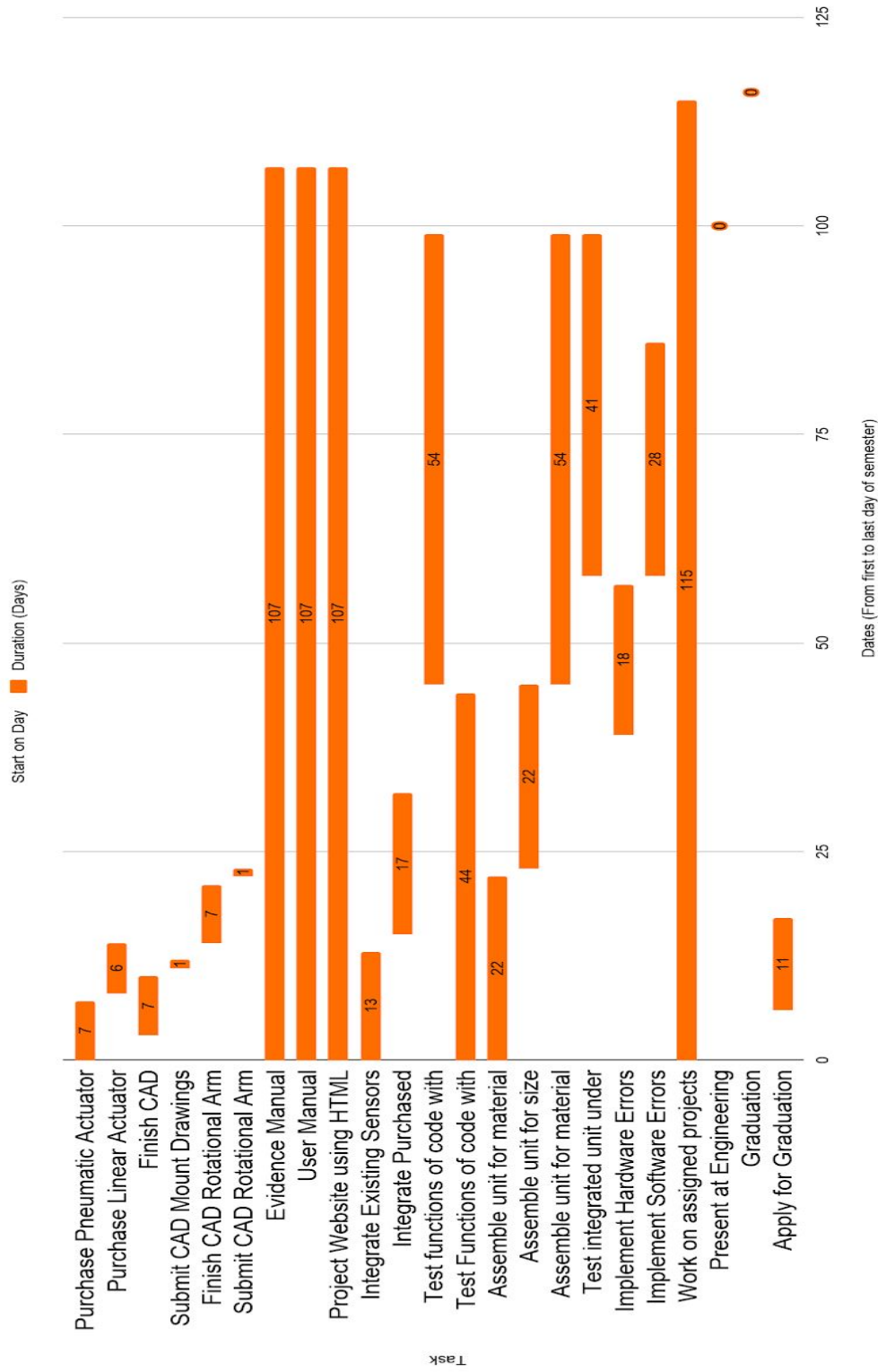
Timeline

- **January**
 - Finish purchasing and have all materials delivered by end of month
 - Purchase in waves
 - Purchase linear actuator components
 - Purchase rotational actuator components
 - Purchase PLC termination hardware
 - Purchase testing cubes and bins
 - Finish modeling CAD components
 - Simulate conditions using CAD programs
 - Submit to machine shop
 - Test machined product under intended use cases
 - Apply for graduation
 - January 13 through 24, 2020
 - Start building (3-4 weeks)
 - Finish Sorting arm(s) (1 week)
 - Calibrate sensors (1 week)
 - Start implementing code (1-2 weeks)
 - Initial assembly (1-2 weeks)
 - Ongoing efforts: (throughout entire semester up until April)
 - Evidence manual for McConomy/Senior Design course
 - User manual for sponsor/TCC course
 - Website Designed using HTML
- **February**
 - Finish and deliver build with working code (1 week)
 - Test code at each integration step
 - Test code with multiple components integrated
 - Test code with full functionality
 - Test code for unplanned scenarios to verify no dangerous logic
 - Ex. cube smaller or larger than planned
 - Start implementing initial errors (3-5 weeks)
 - Hardware (2-3 weeks)
 - Sensor failure
 - Faulty wiring (Open box/switch)
 - Actuator failures
 - Software (1-2 weeks)
 - Improper timers

- Sorting algorithm
 - I/O failures
- **March**
 - Finish and deliver build with controlled errors (1-2 weeks)
 - Troubleshoot/debug system functionality (1-2 weeks)
 - Description of errors and solution (1-2 weeks)
 - Finalize project and prepare for Engineering Design Day (2-3 weeks)
 - Finish manual
 - Finish wiring drawings
 - Set up presentation
 - Present final product to sponsor
- **April**
 - Engineering Design Day
 - April 16,2020
 - Finish individual course work
 - Projects
 - Finals
 - April 27 through May 1, 2020
- **May**
 - **GRADUATION!**
 - Saturday, May 2, 2020 at 9:00 a.m.

Below is a Gantt chart representing our intended progress throughout the semester

Gantt Chart For Spring Semester Progress in Days



Below is the table from which the gantt chart was generated

Task	Start Date	End	Duration (Days)	Start on Day
Purchase Pneumatic Actuator	1/7/2020	1/14/2020	7	0
Purchase Linear Actuator Components	1/15/2020	1/21/2020	6	8
Finish CAD Mounts+Simulations	1/10/2020	1/17/2020	7	3
Submit CAD Mount Drawings to Machine Shop	1/18/2020	1/19/2020	1	11
Finish CAD Rotational Arm	1/21/2020	1/28/2020	7	14
Submit CAD Rotational Arm Drawings to Machine Shop	1/29/2020	1/30/2020	1	22
Evidence Manual	1/7/2020	4/23/2020	107	0
User Manual	1/7/2020	4/23/2020	107	0
Project Website using HTML	1/7/2020	4/23/2020	107	0
Integrate Existing Sensors with PLC	1/7/2020	1/20/2020	13	0
Integrate Purchased Actuators with PLC	1/22/2020	2/8/2020	17	15
Test functions of code with integrated components	2/21/2020	4/15/2020	54	45
Test Functions of code with individual components	1/7/2020	2/20/2020	44	0
Assemble unit for material detection	1/7/2020	1/29/2020	22	0

	0	20		
Assemble unit for size detection	1/30/20 20	2/21/20 20	22	23
Assemble unit for material and size detection	2/21/20 20	4/15/20 20	54	45
Test integrated unit under unplanned conditions (account for error)	3/5/202 0	4/15/20 20	41	58
Implement Hardware Errors	2/15/20 20	3/4/202 0	18	39
Implement Software Errors	3/5/202 0	4/2/202 0	28	58
Work on assigned projects	1/7/202 0	5/1/202 0	115	0
Present at Engineering Design Day	4/16/20 20	4/16/20 20	0	100
Graduation	5/2/202 0	5/2/202 0	0	116
Apply for Graduation	1/13/20 20	1/24/20 20	11	6