Sprint 3 Plan

Product Name: Arduino Micro-Controller for Electric Vehicles
Team Name: Dream Team
Sprint Completion Date: 12/10/14 (tentative)
Revision Number: 0.1
Revision Date: 11/14/14

Sprint 3 Goal: To finish up writing the Arduino C code and hopefully get the Dagne vehicle running using the microcontroller. Make our DREAM possible!

User stories:

- Task 0.0: PID_Controller() - to do steer/lean/brake controls
- Task 0.1: SampleVoltage() - to pull get input from user inputs
- Task 0.2: PCA_ISR() - to receive PWM inputs from the sensors and sets flags

(3) *Story 1: As a user, I want to have a fully functional brake control subsystem.*

- Task 1.1: SpeedSteeringControlMap() [Joystick_FB_Ref]
- Task 1.2: ComputePWMOutputs() [pBrakeValveS1, pBrakeValveS2]
- Task 1.3: Brake Control (lines 470-479)
- Task 1.4: Wait for traction motor control to set up (as it works in conjunction to help set the the brake. Hook up correct hardware input/outputs and test.

(6) *Story 2: As a user, I want to have a fully functional traction motor control system.*

- Task 2.1: Traction Motor Command Processing (lines 505-647).
- Task 2.2: SampleSensors() [SpeedState]
- Task 2.3: Hook up to correct hardware input/outputs and test (carefully).

(5) *Story 3: As a user, I want to have a fully functional steer control subsystem.*

- Task 3.1: SpeedSteeringControlMap(). [Joystick_LR_Ref and SteerAngleLimit]
- Task 3.2: ComputePWMOutputs() [pSteerValveS1, pSteerValveS2]
- Task 3.3: SampleSensors() [checking SensFlag]
- Task 3.4: Steer control (lines 450-458)
- Task 3.5: Hook up to correct hardware input/outputs and test.

(5) *Story 4: As a user, I want to have a fully functional lean control subsystem.*

- Task 4.1 SpeedSteeringControlMap(). [LeanAngleLimit]
- Task 4.1: ComputePWMOutputs() [pLeanValveS1, pLeanValveS2]
- Task 4.2: SampleSensors() [checking SensFlag]
- Task 4.3: Lean Control (lines 460-468)
- Task 4.4: Hook up to correct hardware input/outputs and test.

(5) *Story 5: As a user, I want to have a fully functional hydraulics subsystem. Unknown priority, due to the fact that I'm not entirely sure how it'll affect the other parts. May move up in priority after initial testing.*

- Task 5.1: Hydraulic System Control Loop (line 480-502)

- Task 5.2: Hook up to correct hardware input/outputs and test.

(5) *Story 6: As the EV club that will continue this project, I want to be able to see documentation of all of the work done.*

- Task 6.1-6: Document everything.

(8) Story 7: *As a tester, I need to be able to do software builds and run regression tests.*

- Task 7.1: Do a quality check on Arduino documentation
- Task 7.2: Create unit tests for each function
- Task 7.3: Create system test
- Task 7.4: Work with CE people and make sure hardware and software work as expected.

Initial Task Assignment

Alejandro - Story 1 (Brake Control System)
Nikolai - Story 4 (Lean Control)
Aravind - Story 3 (Steer Control System)
Leland - Task 0.1 - 0.2 (PWM Input)
Navjot - Story 2 (Traction Motor Control)
Hemant - Story 6 (Documentation)
Wallace - Task 0.0 (PID Controller)

Team Roles

Alejandro Aguilar - Product Owner
Nikolai Kallhovde - Team member/developer
Aravind Sambamoorthy - Team member/developer
Leland Miller - Team member/developer
Navjot Singh - Team member/developer
Hemant Ramachandran - Scrum Master
Wallace Luk - Scrum Master

Scrum Times

Mon 3:30pm
Wed 3:30pm
Fri 10:00am