

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 for SampleSensors() function.
- (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 - Task 3.1: SpeedSteeringControlMap()
 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