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Weekly meeting, 2/11/2015

Digital Dash

Portland State University
Department of Electrical and Computer Engineering (ECE)

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Weekly Progress Report

- Updated Solutions in Proposal

- Project schedule
  - Extended to include Presentation & Poster

- 4D-System Display
  - Ordered

- Custom Board
  - Create schematic
  - Design power supply

- Next Steps
  - Test out program with electric car
  - Start GUI design

Updated Proposal

- Solutions Page
  - Introduction
  - Block Diagram
  - Prototype
  - Hardware
    - Micro-Controller
    - Power Supply
    - Display
  - Software
    - Communication Program
    - User Interface

Solutions Github Page

Project Schedule

- Gantt Chart updated to include Presentation
  - Schedule adjusted to include
    - Presentation (6/12/15)
   - Poster (6/12/15)
    - Wrap up documentation

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4D-Systems Display

- **Display Ordered**

  - uLCD-35DT

  - 3.5" screen

  - Arduino Starter Kit

  - $94.16

Arduino Due Schematic

Custom Board Schematic

CAN Transceiver
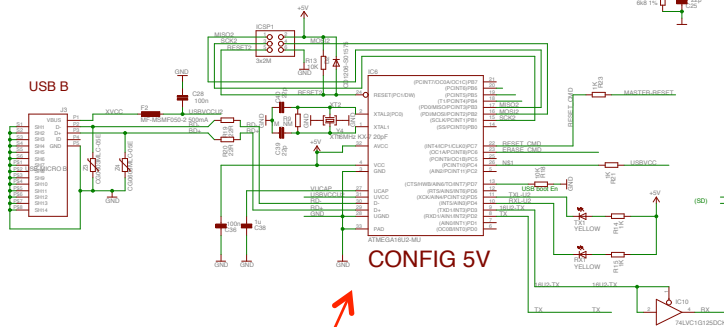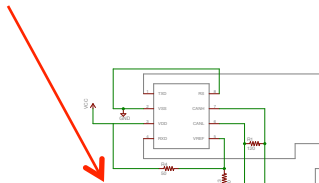
Power Supply

USB Programmer
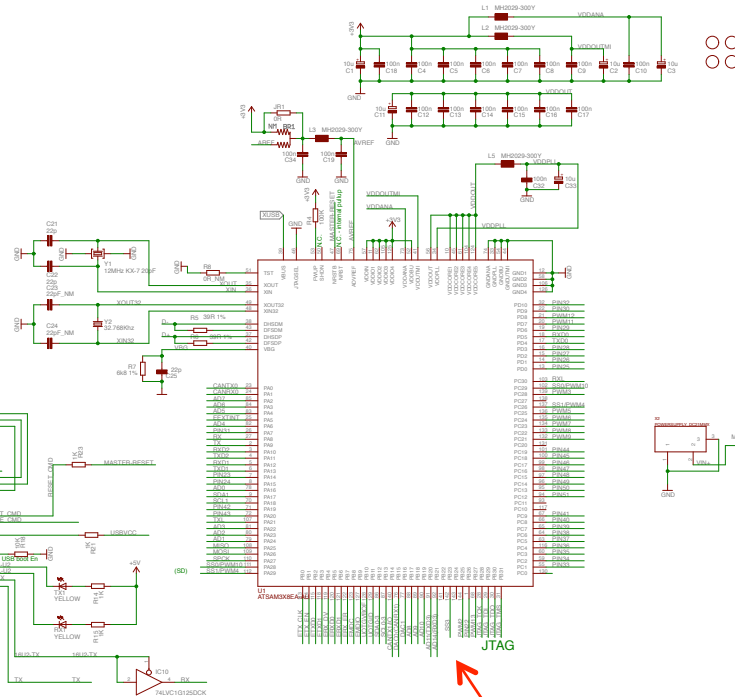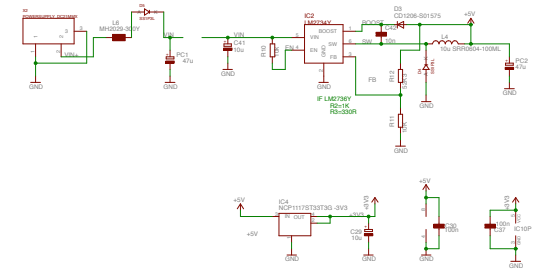
MicroController

Power Supply

- ## Current

  - LM2743

    - Switching DC-DC Converter (Noise)

    - Complicated

    - $2.74 & up (Digi-Key)

- ## Alternatives

  - Fixed Voltage

    - Specific voltages only

  - Adjustable (Low Drop Out)

    - Easy To Use

    - Low Noise

    - $1.50 & up

Fig.2 Test Circuit for Ripple Rejection
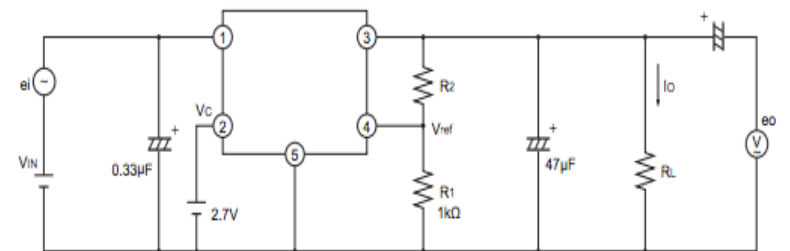
Sharp-070Xz1H

f=120Hz sine wave
ei(rms)=0.5V
Vo=3V(R1=1kΩ)
VIN=5V
Io=0.3A
RR=20log(ei(rms)/eo(rms))

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Prototyping Progress (update)

- Arduino Due and MCP2551 Transceivers received

- Were able to successfully send CAN messages between CAN0 and CAN1

- Both polling and interrupt versions

- Error codes defined

- Interrupts setup for receiving messages

- Prototype ready for testing with car.

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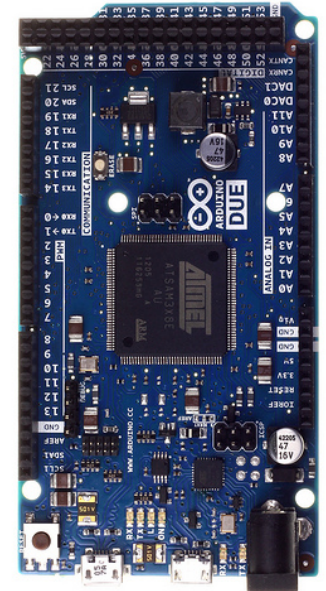
Next Steps

- ## The 4D systems screen
  - Wait till it arrives
  - Begin laying out GUI using systems IDE

- ## Documentation

  - Continue both Hardware & Software

- ## Debug Prototype
  - Test Prototype with actual messages from the car's CAN Buses

- ## Custom Board
  - Continue schematic capture for new board
  - Begin new board layout

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