The Cool Beans
Poor Man's Lowjack

Bryon Wheeler

Philip Krebs

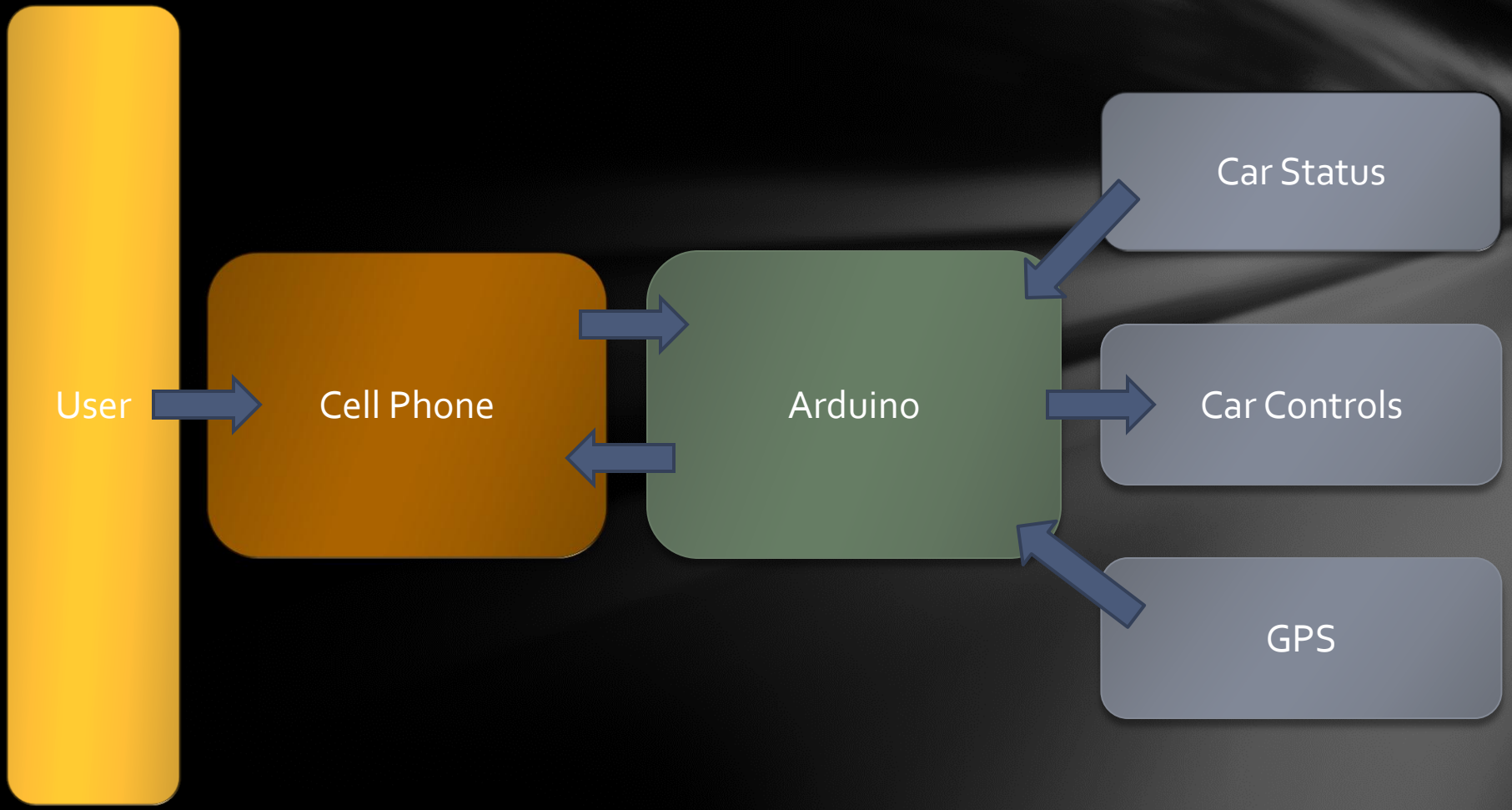
Gregory Beck

Simon Chulin

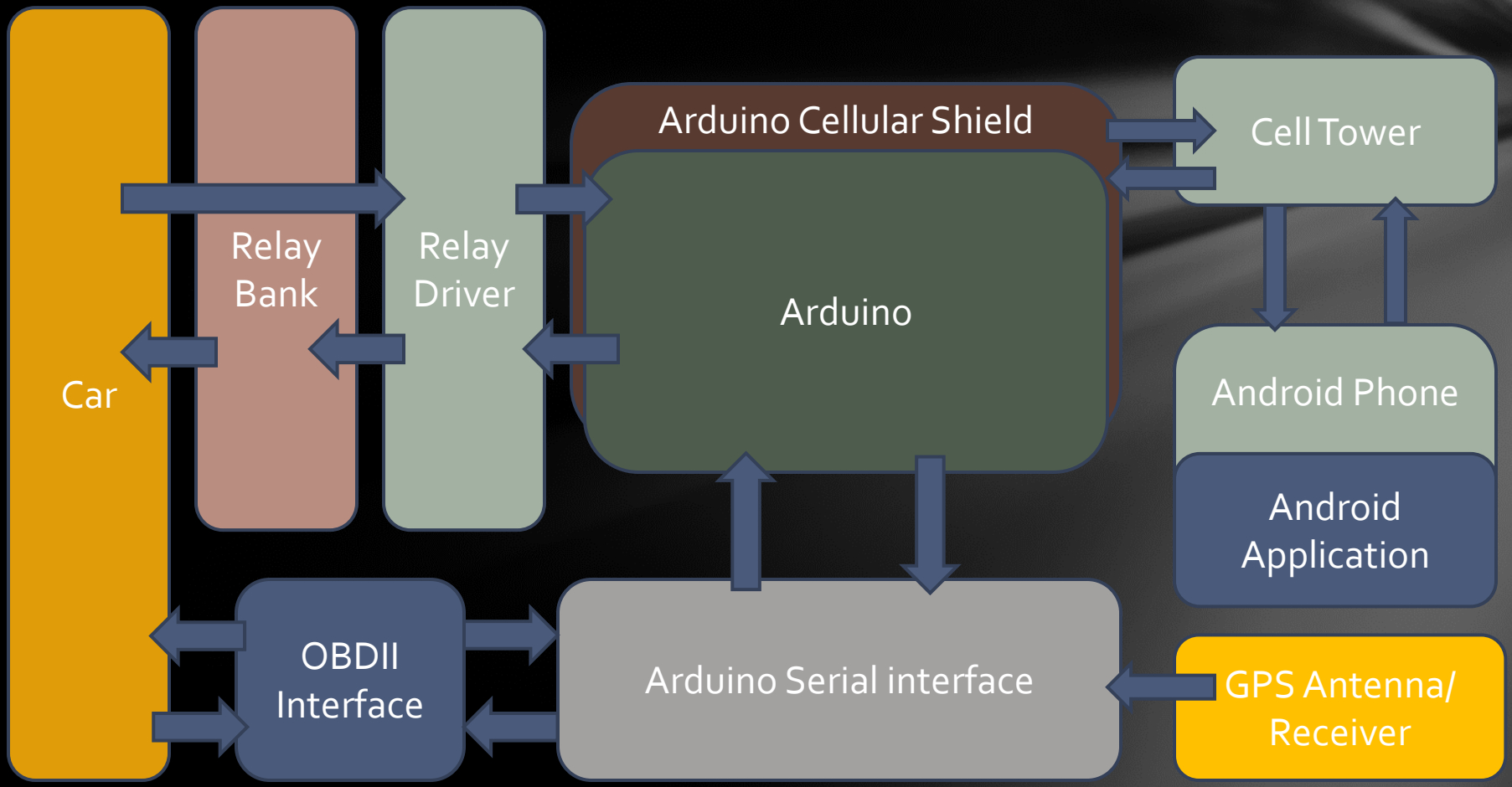
Feature List For Demo Day

- Start Car
- Unlock/lock Car
- GPS Tracking
- Car Status Report

Interfaces



Hardware Block Diagram

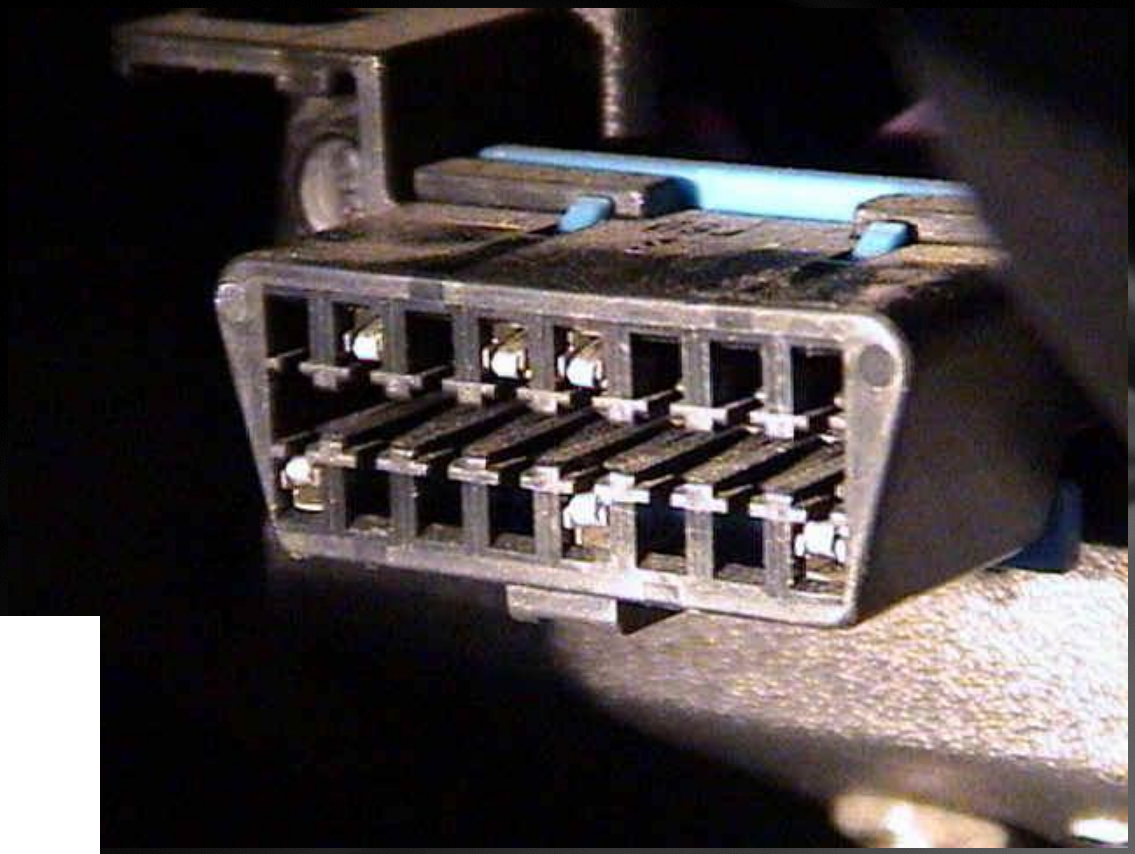


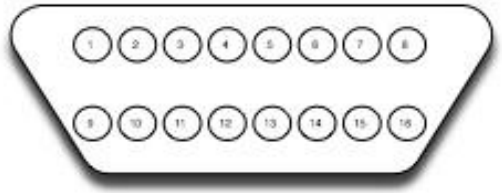
Philip Krebs

- Interfacing with the vehicle
- Pulling data from vehicle OBDII to the Arduino Serial port
- Research vehicle wiring and find needed signals in wiring harness
- Build Relay Bank for car interface.
- Power supply needs for hardware

Schedule (each Month)

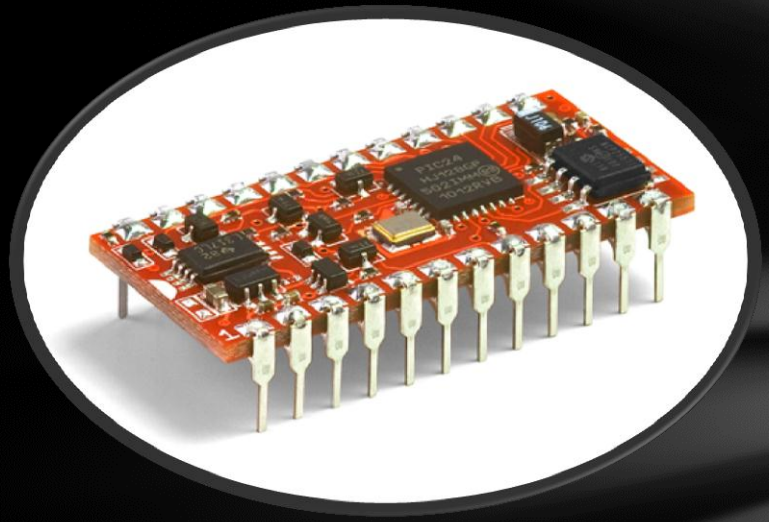
1. Build Relay Bank for Car Interface
2. Setup power supply and full interface with vehicle
3. Arduino interfacing
4. Completing everything and getting it working





1 - blank	9 - blank
2 - J1850 bus	10 - J1850 bus
3 - blank	11 - blank
4 - Chassis Ground	12 - blank
5 - Signal Ground	13 - Signal Ground
6 - CAN High	14 - CAN Low
7 - ISO 9141-2 K Line	15 - ISO 9141-2 L Line
8 - blank	16 - Battery Power

OBD II Interpreter



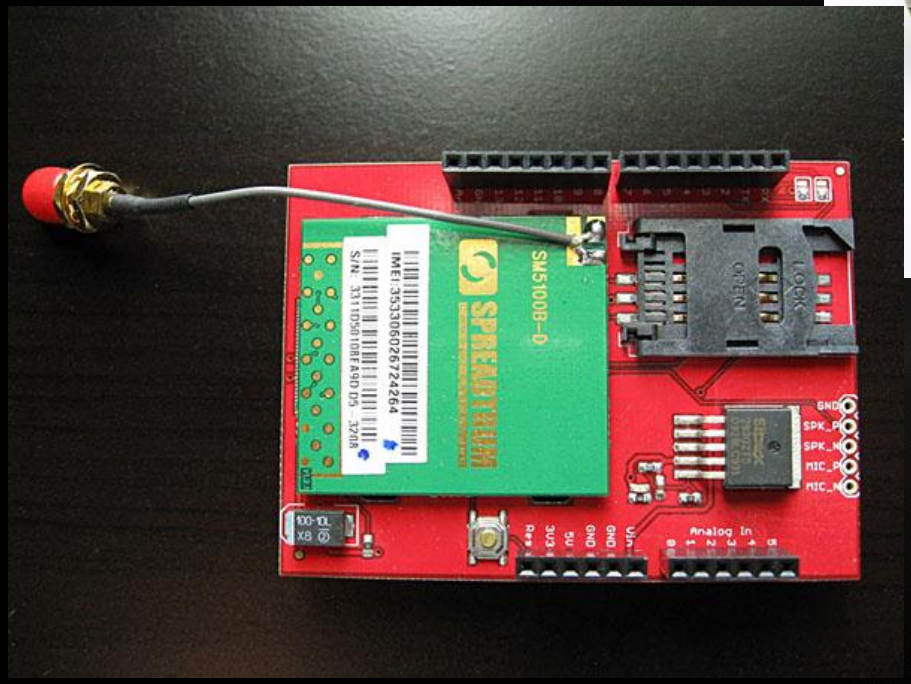
- Supports all legislated OBD-II protocols and J1939 (heavily duty vehicles)
- Fully compatible with the ELM327 command set
- Extended "ST" command set for access to advanced functionality not available in the ELM327
- UART interface
- Boot-loader for easy firmware upgrades
- Large memory buffer
- Solid automatic protocol detection algorithm, connects to more vehicles reliably
- Smart keep-alive algorithm helps ensure a stable connection on ISO and KWP vehicles

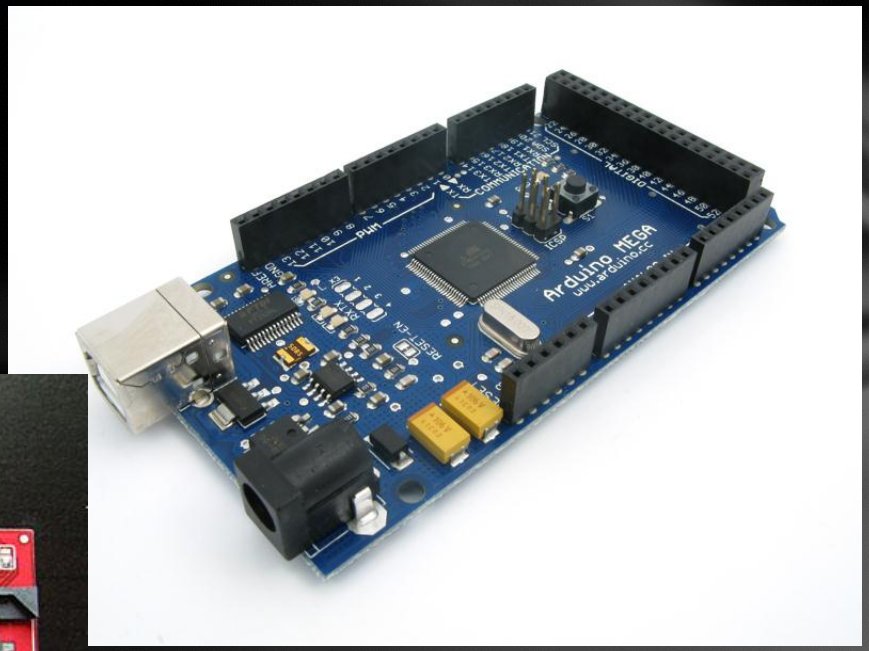
Bryon Wheeler

- Head up coding on the Arduino
- Arduino cell network communication code
- Adapter code for Arduino that understands android interface
- Advertisement on network

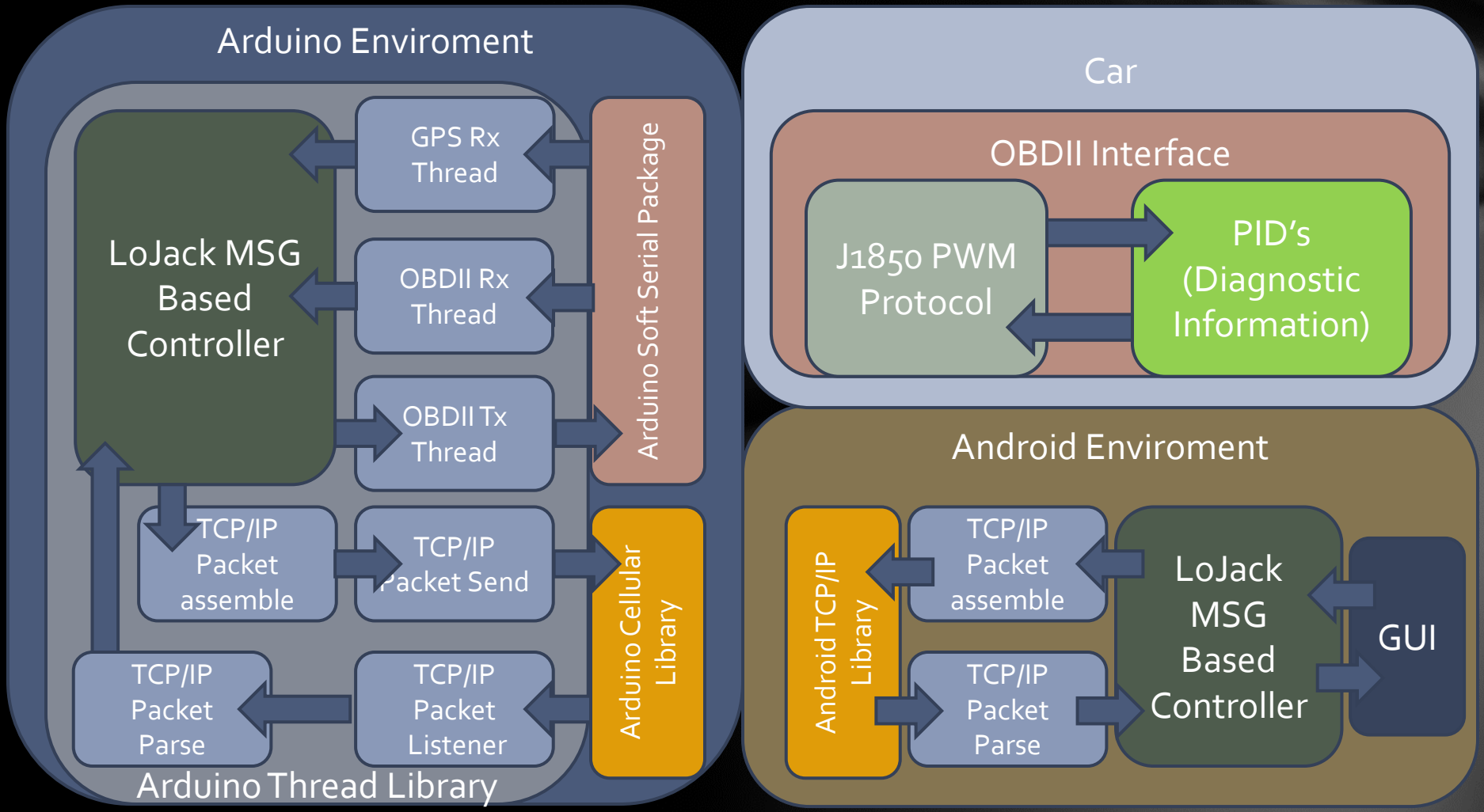
Schedule (each Month)

1. Design and basic programming of Arduino code
2. Communication between cell phone and Arduino
3. Full testing of Arduino to Car and cell network
4. Completing everything and getting it working


SM5100B-D
IMEI: 353306026724264
S/N: 331050108FA9D05 3208
LOCK
GND
SPK_P
SPK_N
MIC_P
MIC_N
Analog In


Arduino MEGA
www.arduino.cc

Software Block Diagram



Gregory Beck

- Android software
- Android cell network communication
- Android GUI application
- High level interface plan between car based unit and android

Schedule (each Month)

1. Basic Android App
2. Communication between Android and Arduino
3. Full testing of Arduino to Car and cell network
4. Completing everything and getting it working and clean android app


at&t
GPS
STATUS
START
htc

Simon Chulin

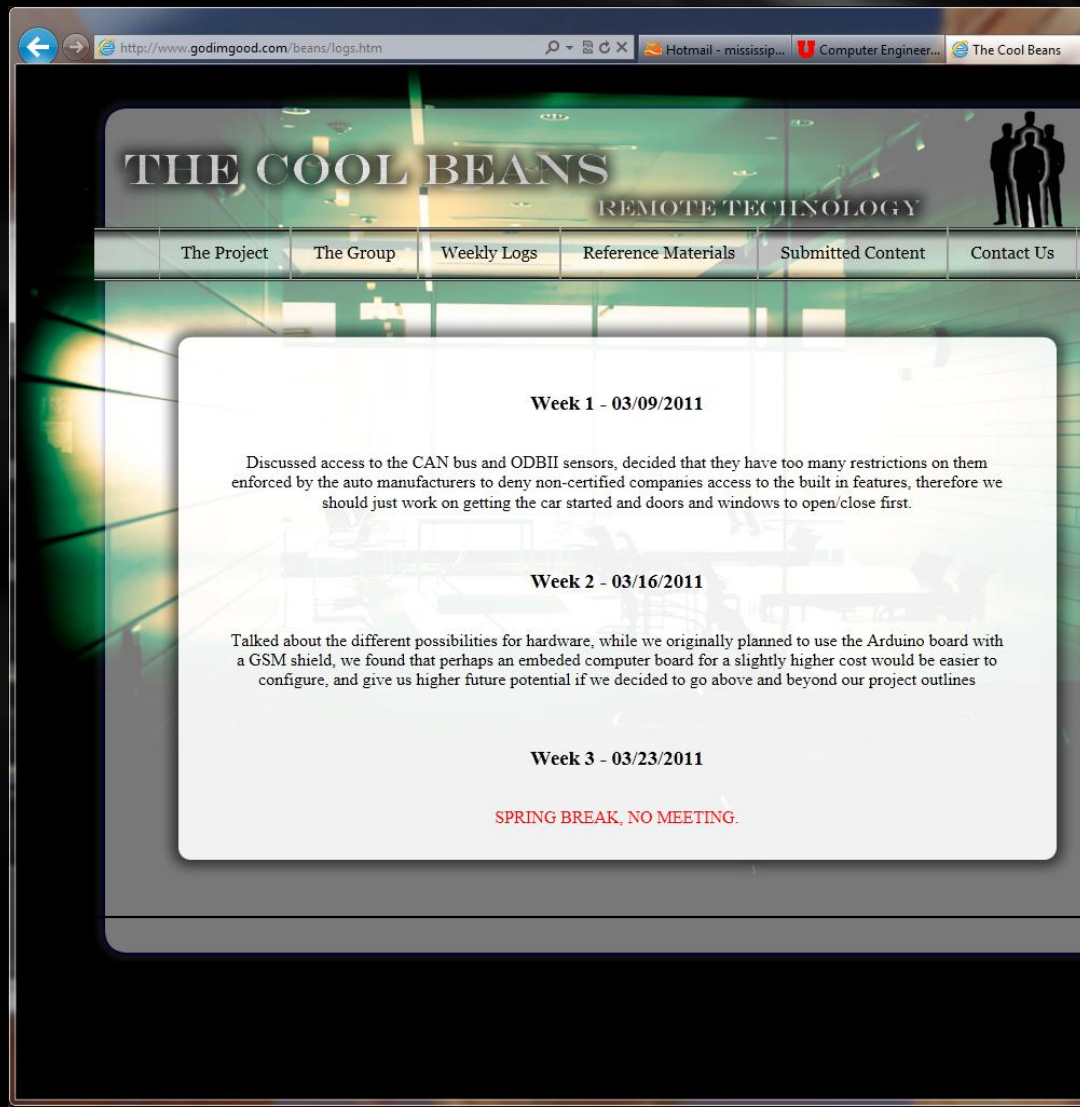
- Website & documentation
- Document interfaces and work to keep all coding parties in sync.
- Purchase parts
- Android – Arduino Networking

Schedule (each Month)

1. Purchase of parts & research TCP/IP networking
2. Communication between Android and Arduino
3. Full testing of Arduino to Car and cell network
4. Completing everything and getting it working and clean android app

www.GodImGood.com

- Project Description
- Member Pages
- Contact Form
- Documentation
- References



Bill Of Materials

Arduino Processor Card: Free - Check out from the U of U

Arduino Cell Shield: $99.95 - http://www.sparkfun.com/products/9607

Cell Shield Antenna: $6.99 - http://www.cutedigi.com/product_info.php?cPath=242_263&products_id=4180

Android phone: Already owned

Sim card: $5.95 - AT&T Store

Wires and cabling: $10.00 ? - Warnock Engineering Building Supply Shop

Relays: $8.99 each bank - http://www.radioshack.com/product/index.jsp?productId=2049722&CAWELAID=107596643

Lab Power Supply for testing: Free - Engineering Lab at U of U

ODBII Connector: $5.00 - http://www.carplugs.com/products.html

Project Boxes: TBD - To Be determined based on size of final project

GPS Antenna (if applicable): $35.90 - http://www.cutedigi.com/product_info.php?cPath=248&products_id=4289

Current Risks

- Shortage of ports or memory on arduino
  - Frugal use of ports
  - Expansion board
- Security systems disabling access
  - Car Selection
- limited data communication between arduino and cell phone
  - Use shortened encoded messages

Security

- Communication Protocols
- Verbosity
- Caller ID?

Things we don’t know.

- How will we advertise or establish a connection over cell towers? IP, Text, Other?

Schedule

Team Cool Beans

Today's Date: 4/4/2011 Monday

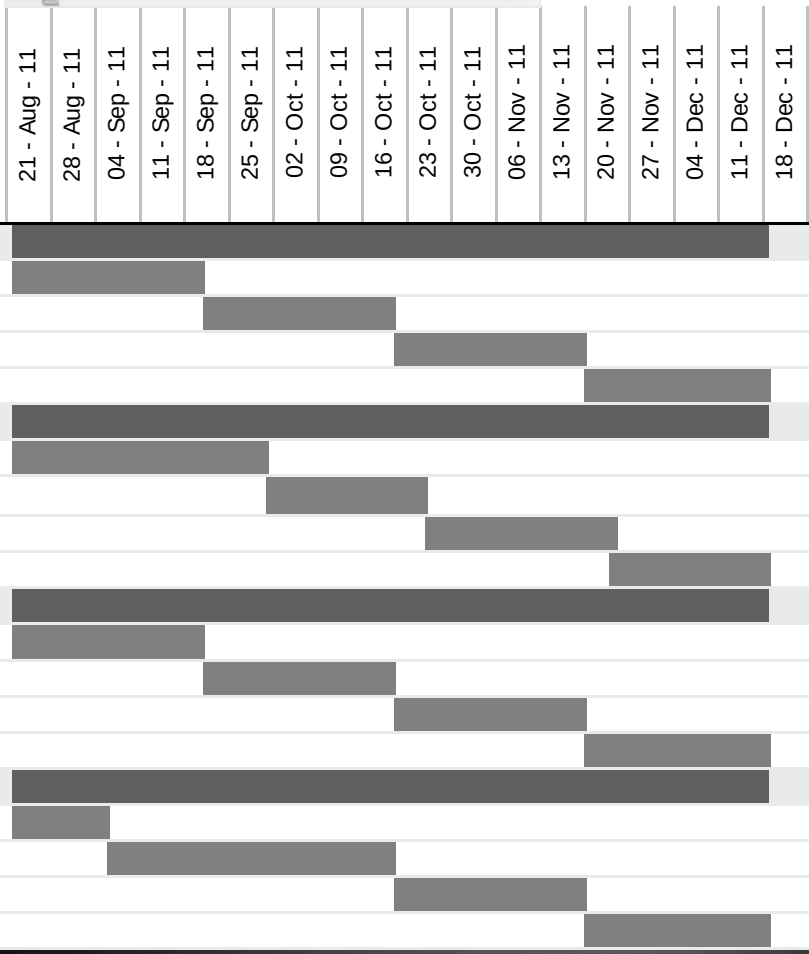
(vertical red line)

Project Lead: Team Cool Beans

Start Date: 8/22/2011 Monday

First Day of Week (Mon=2): 1

WBS	Tasks	Task Lead	Start	End	Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining
1	**Car Interface**	Philip	8/22/11	12/18/11	119	0%	85	0	119
1.1	Relay Bank for Car		8/22/11	9/20/11	30	0%	22	0	30
1.2	Power and full interface		9/21/11	10/20/11	30	0%	22	0	30
1.3	Arduino Interfacing		10/21/11	11/19/11	30	0%	21	0	30
1.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29
2	**Android**	Greg	8/22/11	12/18/11	119	0%	85	0	119
2.1	Basic android App		8/22/11	9/30/11	40	0%	30	0	40
2.2	Connect Android & Arduino		10/01/11	10/25/11	25	0%	17	0	25
2.3	Full testing of arduino & car		10/26/11	11/24/11	30	0%	22	0	30
2.4	Getting things to work		11/24/11	12/18/11	25	0%	17	0	25
3	**Arduino**	Bryon	8/22/11	12/18/11	119	0%	85	0	119
3.1	Basic Arduino Code		8/22/11	9/20/11	30	0%	22	0	30
3.2	Connect cell & arduino		9/21/11	10/20/11	30	0%	22	0	30
3.3	Full testing of arduino & car		10/21/11	11/19/11	30	0%	21	0	30
3.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29
4	**Communications**	Simon	8/22/11	12/18/11	119	0%	85	0	119
4.1	Purchase Parts		8/22/11	9/05/11	15	0%	11	0	15
4.2	Design + code of cell to car		9/06/11	10/20/11	45	0%	33	0	45
4.3	Documentation and Websites		10/21/11	11/19/11	30	0%	21	0	30
4.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29



Questions?