

The Cool Beans

Poor Man's Lowjack

Bryon Wheeler

Philip Krebs

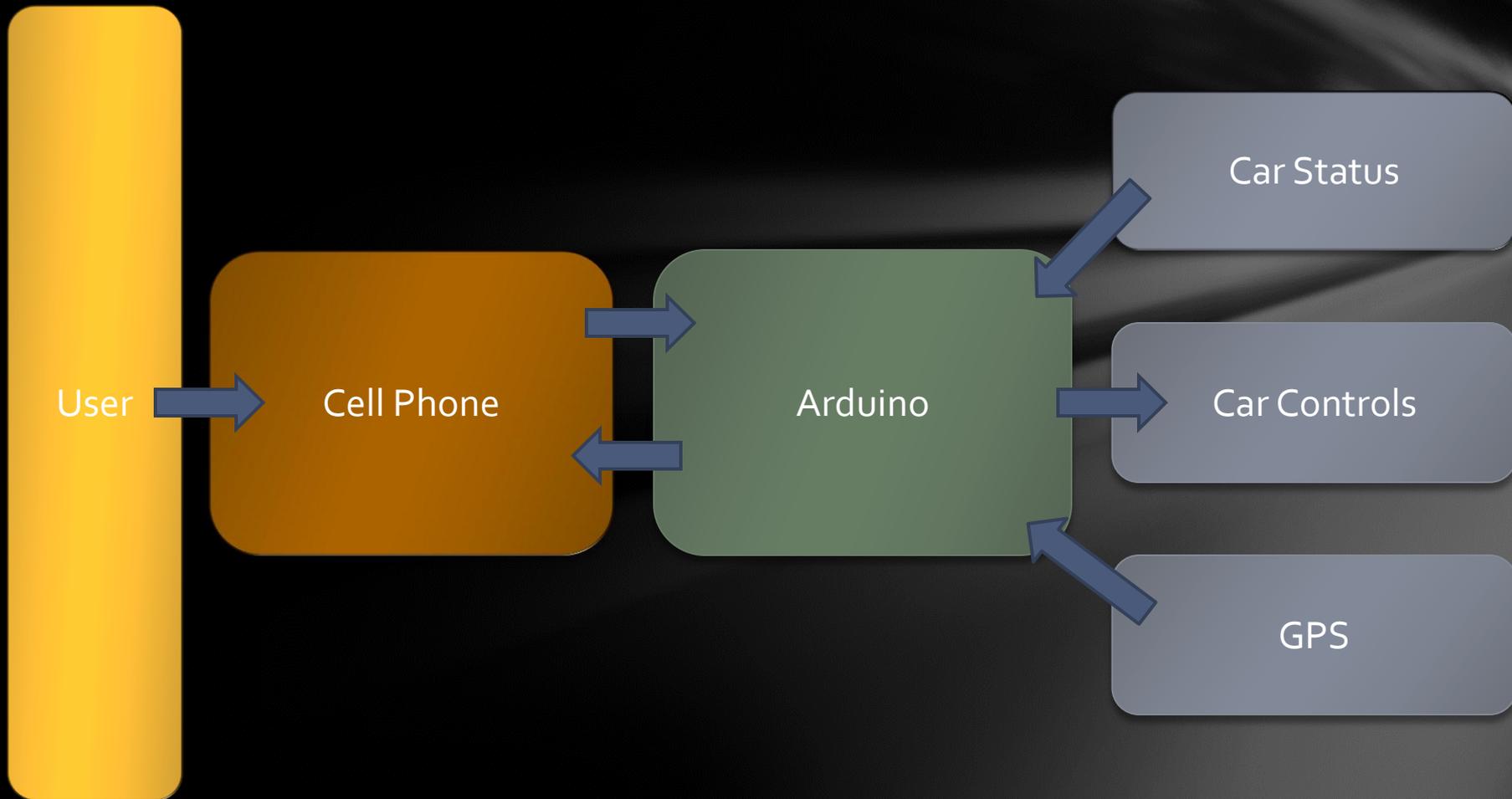
Gregory Beck

Simon Chulin

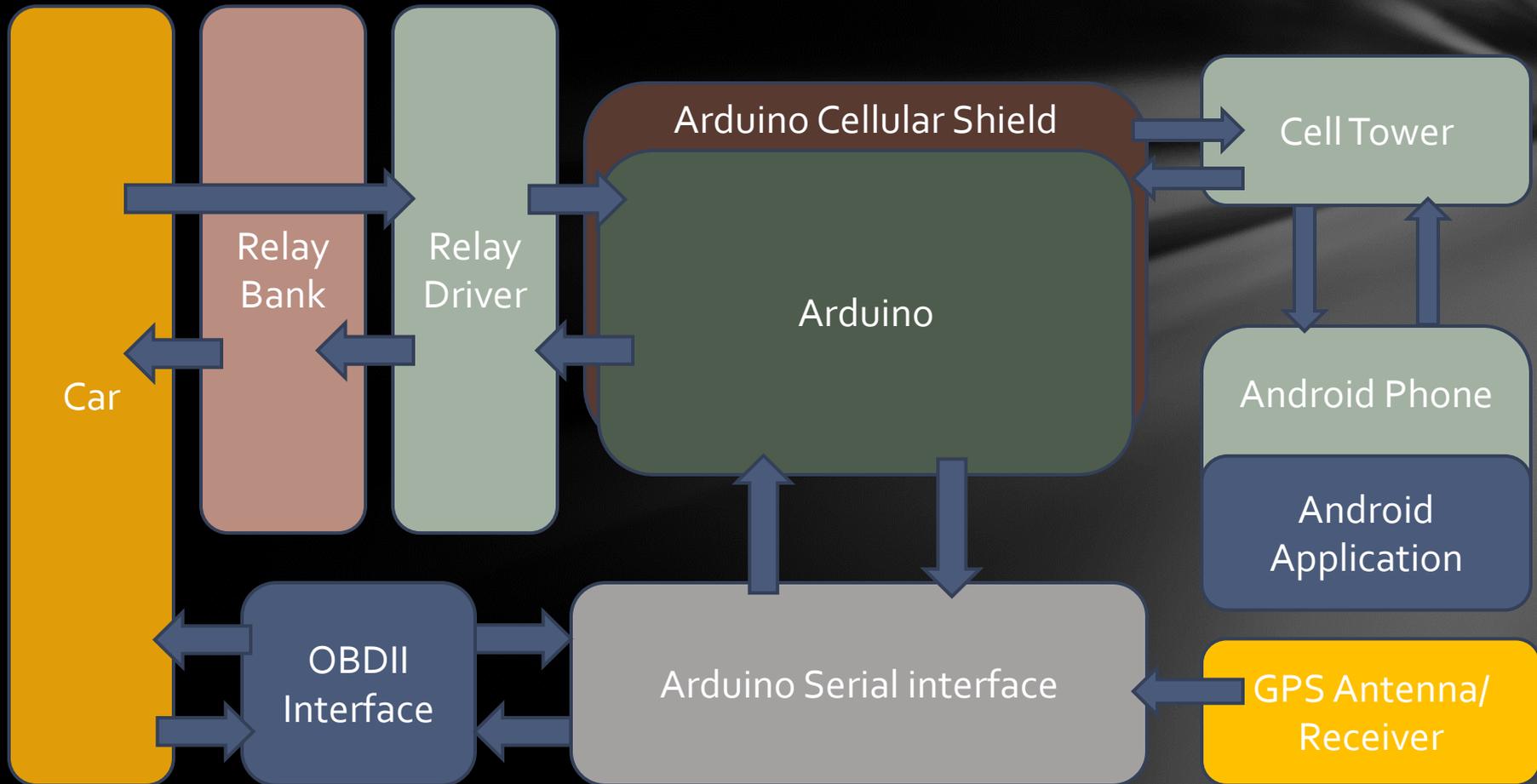
Feature List For Demo Day

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

Interfaces



Hardware Block Diagram

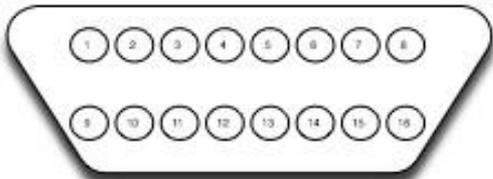
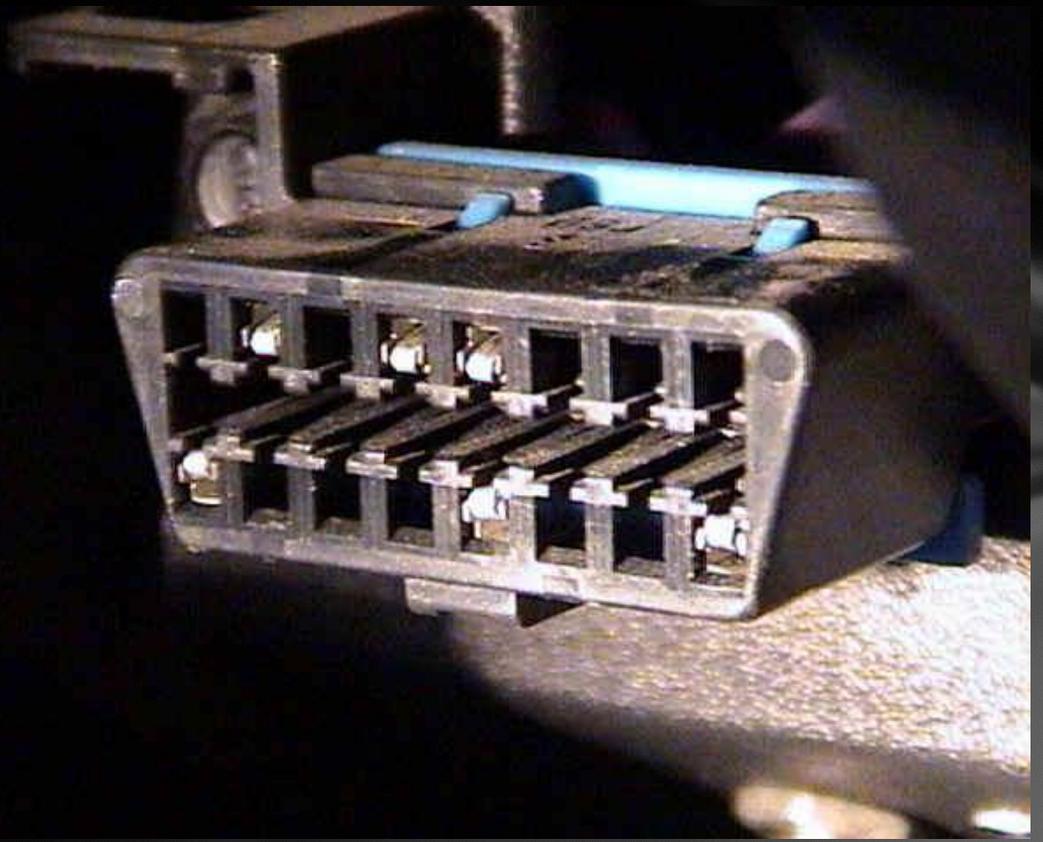


Philip Krebs

- 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

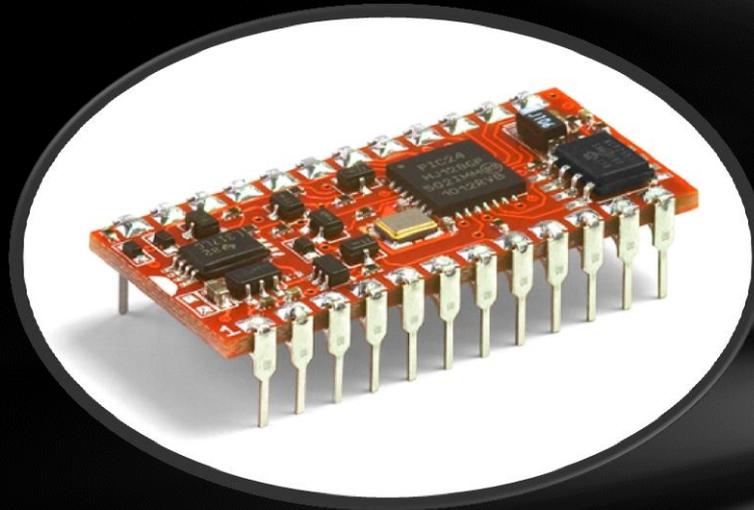
Schedule (each Month)

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



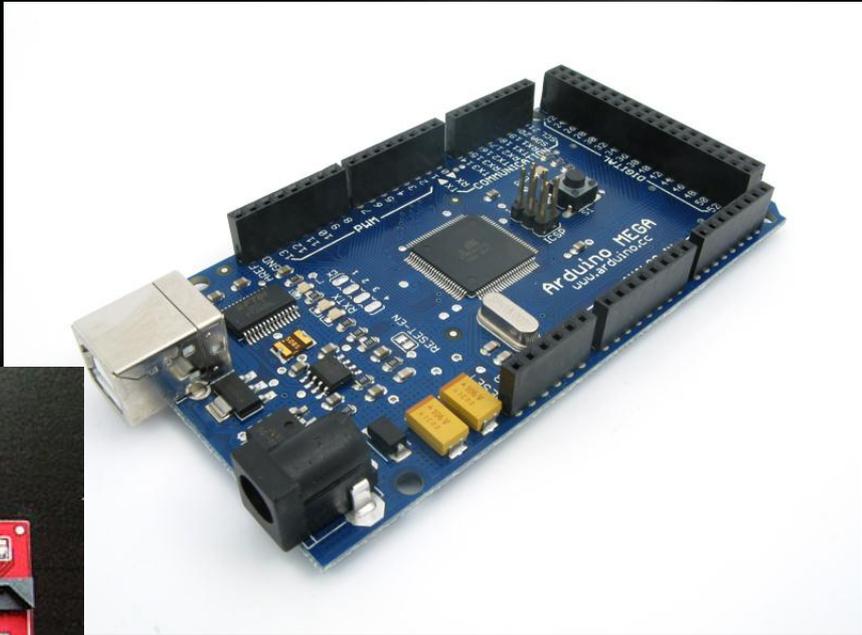
- Supports all legislated OBD-II protocols and J1939 (heavily duty vehicles)
- Fully compatible with the ELM327 command set
- Extended "ST" command set for access to advanced functionality not available in the ELM327
- UART interface
- Boot-loader for easy firmware upgrades
- Large memory buffer
- Solid 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

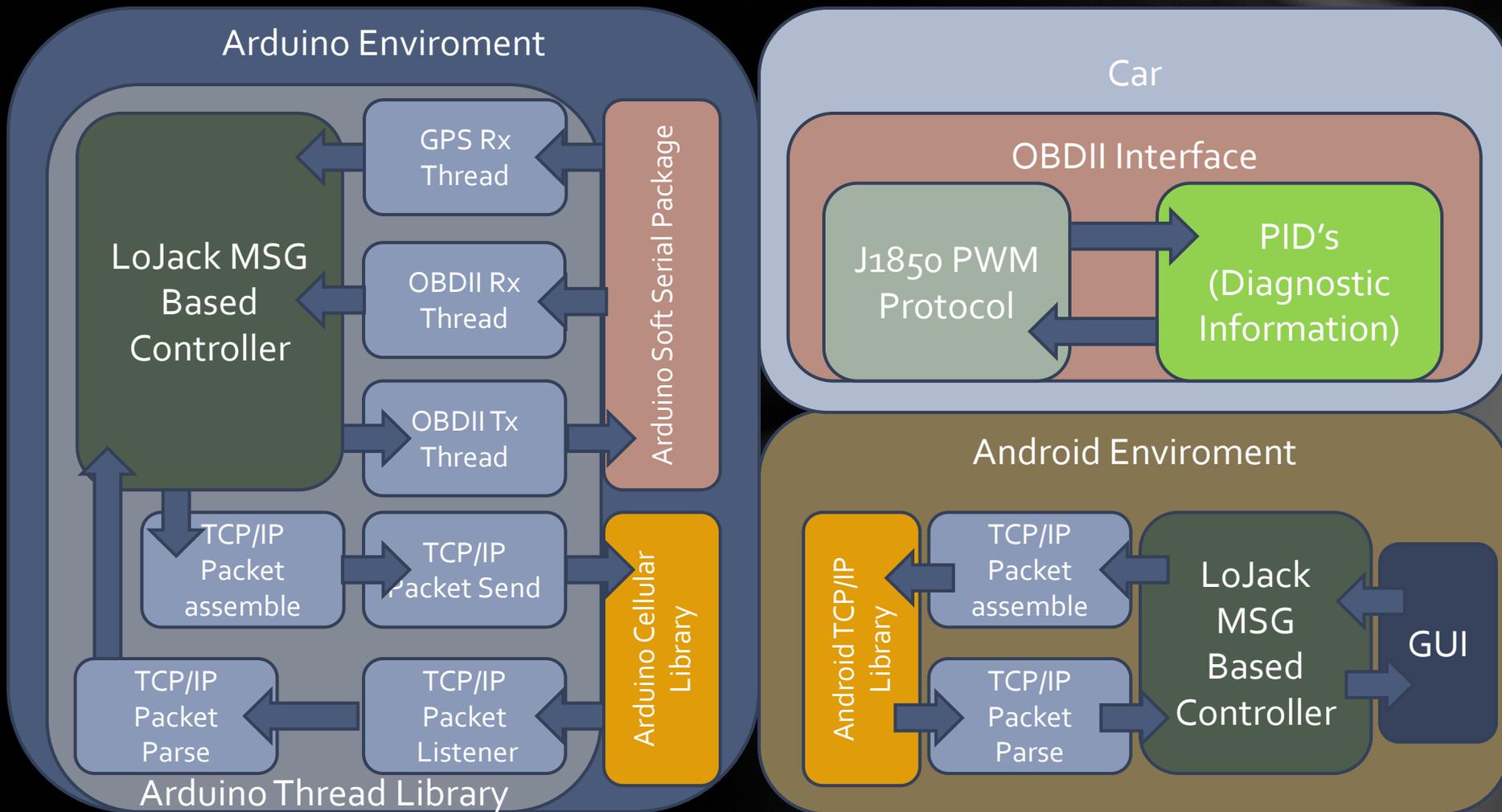
- Head up coding on the Arduino
- Arduino cell network communication code
- Adapter code for Arduino that understands android interface
- Advertisement on network

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



Software Block Diagram

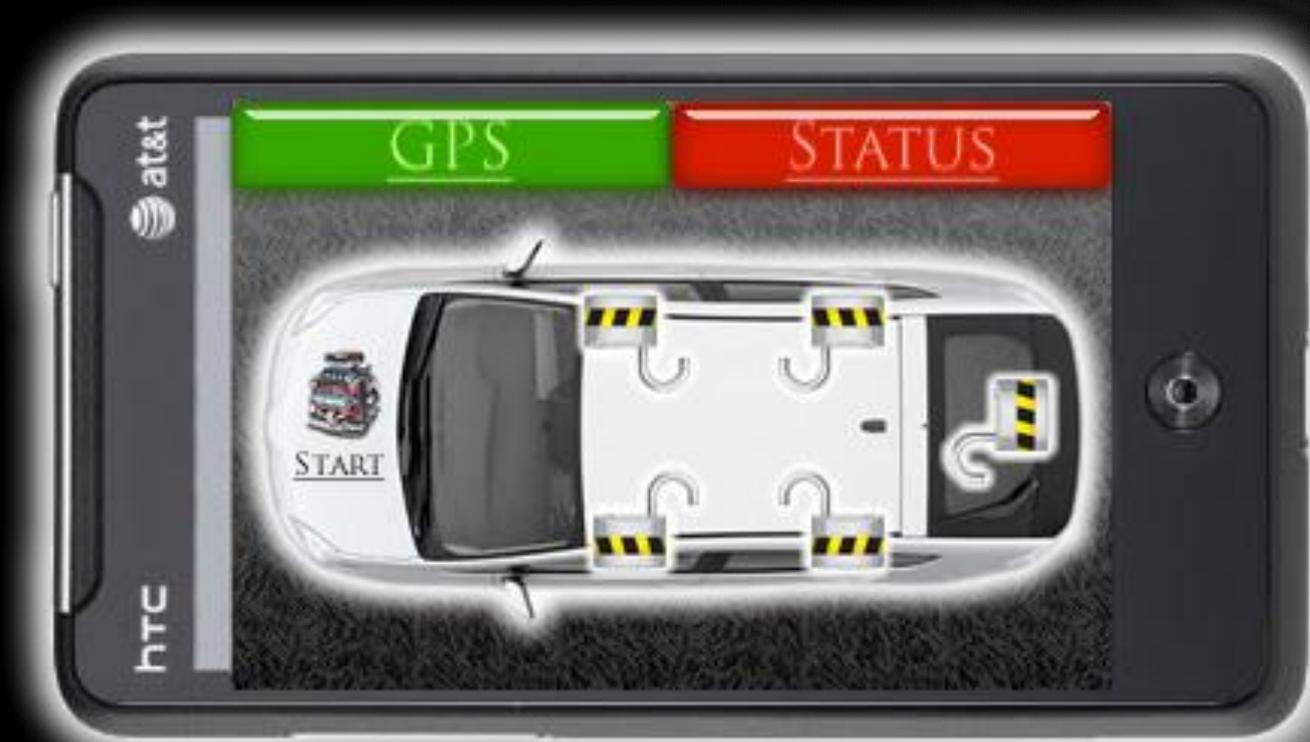


Gregory Beck

- 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



Simon Chulin

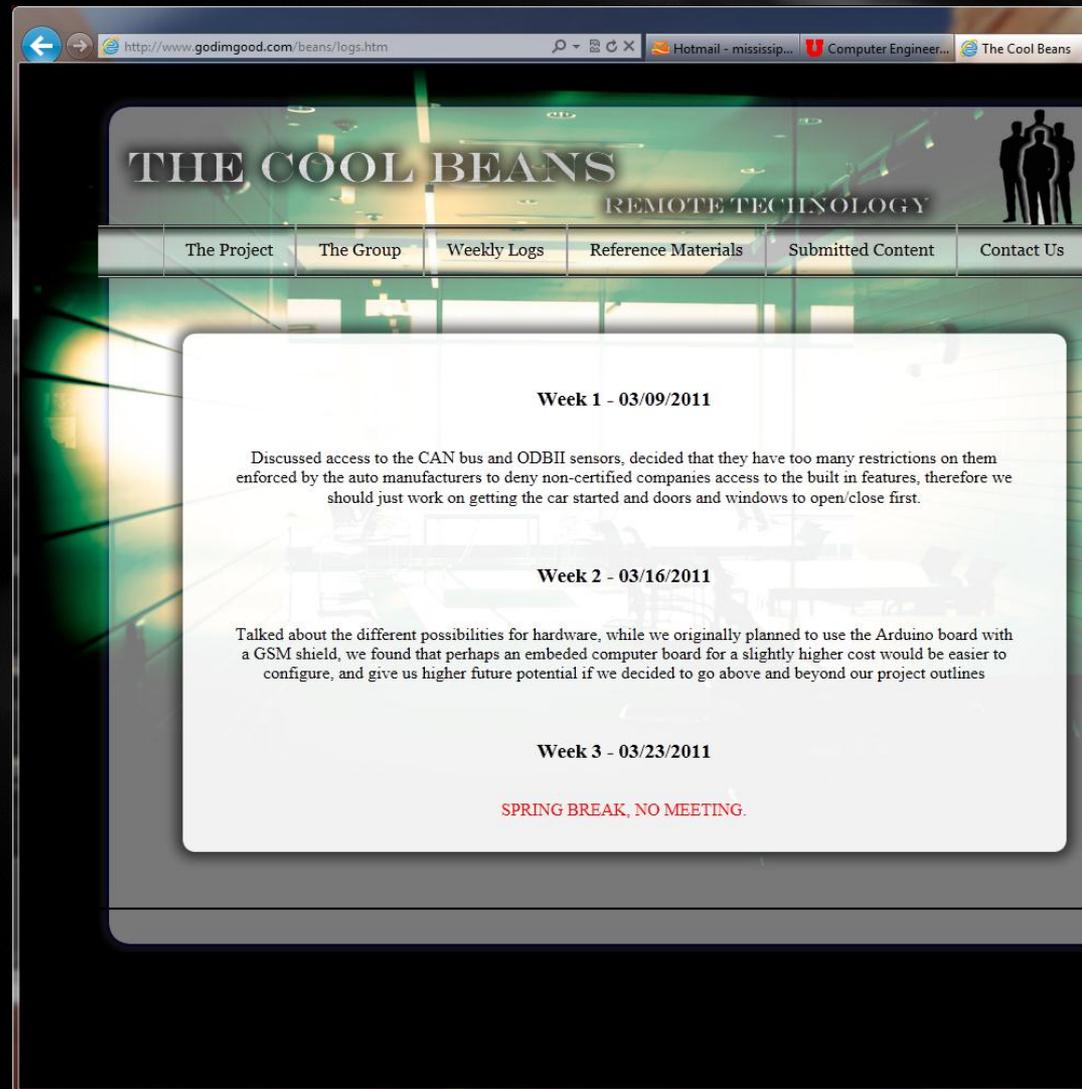
- Website & documentation
- Document interfaces and work to keep all coding parties in sync.
- Purchase parts
- Android – Arduino Networking

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



The screenshot shows a web browser window with the address bar displaying <http://www.godimgood.com/beans/logs.htm>. The website header features the title "THE COOL BEANS" in a large, stylized font, with "REMOTE TECHNOLOGY" underneath it. To the right of the header is a logo consisting of three silhouettes of people. Below the header is a navigation menu with the following items: "The Project", "The Group", "Weekly Logs", "Reference Materials", "Submitted Content", and "Contact Us". The main content area displays a log entry for "Week 1 - 03/09/2011". The text of the log entry reads: "Discussed access to the CAN bus and ODBII sensors, decided that they have too many restrictions on them enforced by the auto manufacturers to deny non-certified companies access to the built in features, therefore we should just work on getting the car started and doors and windows to open/close first." Below this, the log entry for "Week 2 - 03/16/2011" is shown, with the text: "Talked about the different possibilities for hardware, while we originally planned to use the Arduino board with a GSM shield, we found that perhaps an embeded computer board for a slightly higher cost would be easier to configure, and give us higher future potential if we decided to go above and beyond our project outlines". The log entry for "Week 3 - 03/23/2011" is also visible, with the text: "SPRING BREAK, NO MEETING." in red.

THE COOL BEANS
REMOTE TECHNOLOGY

The Project The Group Weekly Logs Reference Materials Submitted Content Contact Us

Week 1 - 03/09/2011

Discussed access to the CAN bus and ODBII sensors, decided that they have too many restrictions on them enforced by the auto manufacturers to deny non-certified companies access to the built in features, therefore we should just work on getting the car started and doors and windows to open/close first.

Week 2 - 03/16/2011

Talked about the different possibilities for hardware, while we originally planned to use the Arduino board with a GSM shield, we found that perhaps an embeded computer board for a slightly higher cost would be easier to configure, and give us higher future potential if we decided to go above and beyond our project outlines

Week 3 - 03/23/2011

SPRING BREAK, NO MEETING.

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	21 - Aug - 11	28 - Aug - 11	04 - Sep - 11	11 - Sep - 11	18 - Sep - 11	25 - Sep - 11	02 - Oct - 11	09 - Oct - 11	16 - Oct - 11	23 - Oct - 11	30 - Oct - 11	06 - Nov - 11	13 - Nov - 11	20 - Nov - 11	27 - Nov - 11	04 - Dec - 11	11 - Dec - 11	18 - Dec - 11
1	Car Interface	Philip	8/22/11	12/18/11	119	0%	85	0	119	[Gantt bar spanning from 8/22/11 to 12/18/11]																	
1.1	Relay Bank for Car		8/22/11	9/20/11	30	0%	22	0	30	[Gantt bar spanning from 8/22/11 to 9/20/11]																	
1.2	Power and full interface		9/21/11	10/20/11	30	0%	22	0	30	[Gantt bar spanning from 9/21/11 to 10/20/11]																	
1.3	Arduino Interfacing		10/21/11	11/19/11	30	0%	21	0	30	[Gantt bar spanning from 10/21/11 to 11/19/11]																	
1.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29	[Gantt bar spanning from 11/20/11 to 12/18/11]																	
2	Android	Greg	8/22/11	12/18/11	119	0%	85	0	119	[Gantt bar spanning from 8/22/11 to 12/18/11]																	
2.1	Basic android App		8/22/11	9/30/11	40	0%	30	0	40	[Gantt bar spanning from 8/22/11 to 9/30/11]																	
2.2	Connect Android & Arduino		10/01/11	10/25/11	25	0%	17	0	25	[Gantt bar spanning from 10/01/11 to 10/25/11]																	
2.3	Full testing of arduino & car		10/26/11	11/24/11	30	0%	22	0	30	[Gantt bar spanning from 10/26/11 to 11/24/11]																	
2.4	Getting things to work		11/24/11	12/18/11	25	0%	17	0	25	[Gantt bar spanning from 11/24/11 to 12/18/11]																	
3	Arduino	Bryon	8/22/11	12/18/11	119	0%	85	0	119	[Gantt bar spanning from 8/22/11 to 12/18/11]																	
3.1	Basic Arduino Code		8/22/11	9/20/11	30	0%	22	0	30	[Gantt bar spanning from 8/22/11 to 9/20/11]																	
3.2	Connect cell & arduino		9/21/11	10/20/11	30	0%	22	0	30	[Gantt bar spanning from 9/21/11 to 10/20/11]																	
3.3	Full testing of arduino & car		10/21/11	11/19/11	30	0%	21	0	30	[Gantt bar spanning from 10/21/11 to 11/19/11]																	
3.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29	[Gantt bar spanning from 11/20/11 to 12/18/11]																	
4	Communications	Simon	8/22/11	12/18/11	119	0%	85	0	119	[Gantt bar spanning from 8/22/11 to 12/18/11]																	
4.1	Purchase Parts		8/22/11	9/05/11	15	0%	11	0	15	[Gantt bar spanning from 8/22/11 to 9/05/11]																	
4.2	Design + code of cell to car		9/06/11	10/20/11	45	0%	33	0	45	[Gantt bar spanning from 9/06/11 to 10/20/11]																	
4.3	Documentation and Websites		10/21/11	11/19/11	30	0%	21	0	30	[Gantt bar spanning from 10/21/11 to 11/19/11]																	
4.4	Getting things to work		11/20/11	12/18/11	29	0%	20	0	29	[Gantt bar spanning from 11/20/11 to 12/18/11]																	

Questions?