Attached you will find a few PDF files that I will reference throughout this document as:

[1] Mega\_Shield\_sch-v13.pdf

[2] Mega\_Shield\_brd-v13.pdf

Documents [1] and [2] show the current process of the custom “shield” we’re designing for the dashboard. [1] is the schemeatic, [2] the layout.

[1]

The central structure of this file is 2 sets of header pins for the Arduino MEGA development board. The main reason for 2 is to have one for direct access to the microcontroller, and another to solder additional wires in case of an additional need post-print.

On the top-right you will find the two LCD displays we plan to use to show information on the dash (voltages, temps, fuel, etc.), as well as a trimpot for brightness control.

The circuit on the top-left shows the K-UART converter circuit, that will convert 12V logic to 5V logic to avoid blowing up the arduino. That circuit was found online, and I’ve since reconstructed in in EAGLE.

Status LEDs and Reset: Self explanatory, used for debugging.

AUTOBOX\_HARNESS: This is the 16-pin connector from the Autobox harness (well, it’s a connector with 16 pins, we’re not sure which one we’re using yet). It is connected (and also not connected) to various points on the circuit. As we add more to the design, more pins will be used.

[2]

This is the current layout of the board. It will be mounted to the back of the assembled dashboard and the arduino will piggyback off of it for easy access.

It’s very rough. The yellow lines represent wires that need to be routed (there’s a lot), and the blue are the wires routed on the bottom side of the board. Note the thickness to carry current from the VIN port into the board.

Layout is not defined. Pending design of dash and constraints from the PCB printing company.