

DashMan User Manual

Leah Diamantides '20, Monserrat Mendez '20 and Nick Steele '20

diamantl@lafayette.edu, mendezm@lafayette.edu and steelen@lafayette.edu

Introduction:

DashMan is a low voltage electrical system that displays information to the driver through LEDs and an epaper display. In addition it contains several buttons that are part of the start up procedure for the car. The enclosure was one of the last components designed by the mechanical team before the shutdown and thus the design will require significant work before it is ready for manufacture and installation on the car.

Google Drive File Path:

CompleteAssembly > 2019-2020-Complete > DashBoard > DashAssembly.iam

Design Overview:

The current DashMan design features two mirrored enclosures. Each has a 1/8" aluminum plate that holds all DashMan electronic components and also mounts directly to the frame of the car. Once the aluminum plate is mounted onto the car with all electronics installed, a one piece 3D printed PLA shell is mounted directly to the back sealing the electronic components. Long 1/4" bolts extend through the entire length of the PLA shell. In addition, there is a connector panel on the inside of each enclosure.

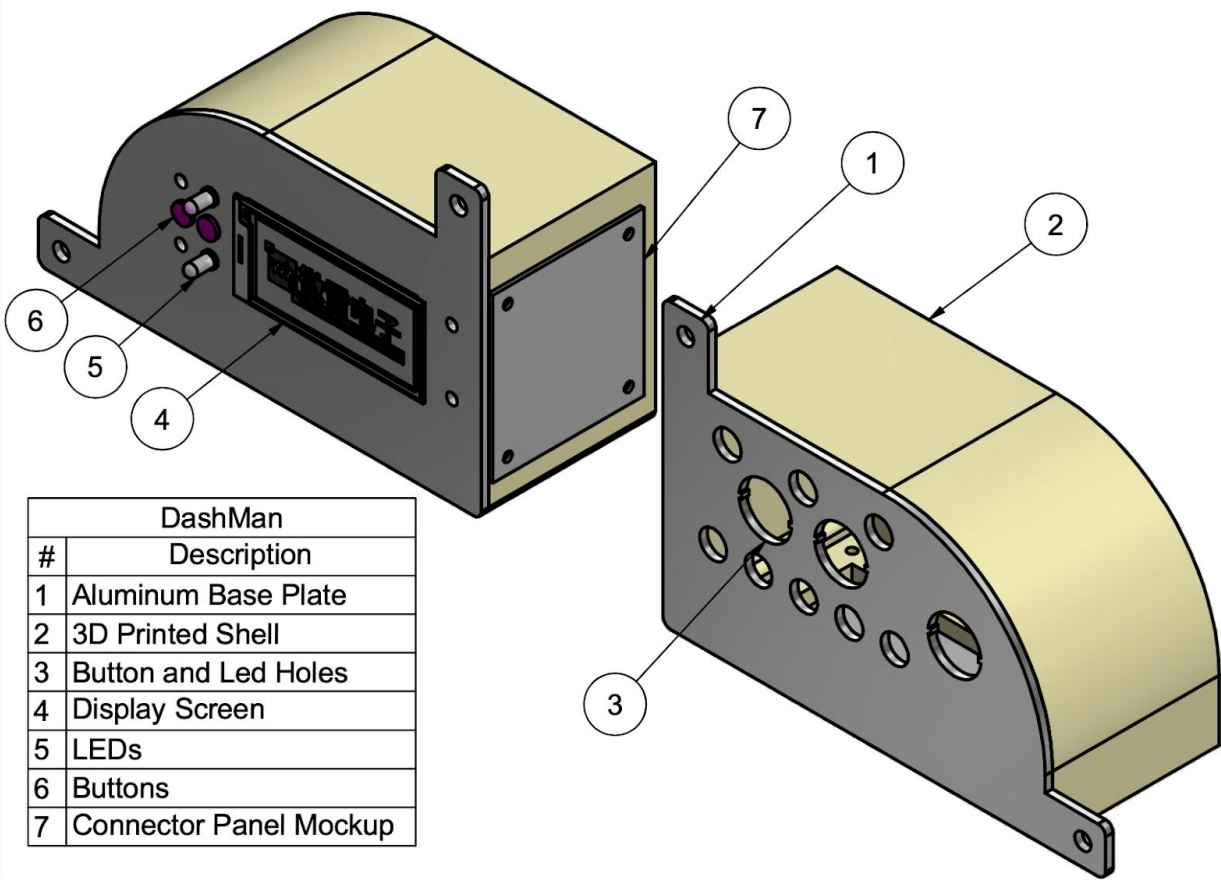
Current State:

Significant work on the electrical systems has been done, but there is much more work on the mechanical side before the system is finished. Button and LEDs for the right side of DashMan have not been finalized. A preliminary dashboard designed by the 2018-2019 exists in the dyno room but this cannot be used on the actual car as the steering column interferes with it.

Future Team Recommendations:

The dashboard that exists in the dyno room and the current proposed DashMan design are great starting points. However, it is suggested that a full mechanical redesign be done. The two piece PLA/Plate design has a lot of benefits. It is easy to manufacture and super simple to install. However there are many other options. Two separate enclosures has significant disadvantages; more cables, more connectors, more parts. We recommended combining them if possible. It is extremely important to keep driver usability, ergonomics and visibility in mind during the design process. Angling the display upwards towards the driver might be nice. Make it sexy too.

DashMan Component Layout



DashMan	
#	Description
1	Aluminum Base Plate
2	3D Printed Shell
3	Button and Led Holes
4	Display Screen
5	LEDs
6	Buttons
7	Connector Panel Mockup