Customer in Mind

Our mission was to create a vehicle with driver assistance features that would create the safest possible driving experience while maximizing comfort and ease of use.

Breaking down this mission statement, first, we must consider at all times that the purpose of this vehicle is to offer assistance to the driver, not to function autonomously . With this goal in mind, it becomes clear that the driver is the leading actor in final vehicle decisions. Thus, the information that the vehicle can provide to the driver, along with baseline danger protection, is of utmost importance. By providing concise, useful information in an effective manner, the IOT HTL software is able to best protect the driver while maintaining driver authority.

Second, in order to create the safest possible vehicle experience, we must build off of this goal of giving effective and clear information to the driver. This is where the Interface Display sets in. Starting with *how* the driver received information, we have the Heads Up Display(abbreviated HUD), which is what the driver can see, hear, and interact with. Since the majority of car accidents are caused by looking away from the road, the HUD seeks to minimize distractions that would cause the driver to look off the road. It is located on the windshield of the car to provide easy use, and is designed with consideration for minimizing driving time distractions. On the display, the driver can see the speedometer, gas level, car weather control, current direction, along with a GPS rendering of the car's current location. Additionally, to minimize looking away from the road, all notifications (e.g. low gas, sensor detection warnings) will be read aloud to the driver and current noise from the audio system will be lowered.

Now that it is established how the driver will receive information via the HUD, we can examine *what* information is chosen to present. Since the vehicle is centered on driver enhancement, only information that impacts the driver's performance is relayed from the planning module. Finding a balance is key since, on one hand, the driver must be aware of vehicle states that could impact their driving or of objects outside the vehicle that could cause wrecks, yet, on the other hand, the driver must not be bogged down with information since this could cause them to neglect information of higher importance. Thus, the Planning Module relays information to the Interface Display that can have a direct impact on the safety of the driver. For example, a low gas warning when the driver has only 20 miles left of gas, or danger warnings when the driver is too close to an outside object.

Finally, no one knows the best way for this system to work besides the driver themself. Thus, the driver is granted easy access and clear directions in the User Manual, which can be

rendered on the display, on how to modify the notifications system. The default settings are what ALSET recommends for board safety measures, but it is recognized that drivers have preferences. However, the baseline layout of the HUD will remain consistent to ensure that these baseline safety standards are met.