Smart Car

Project Summary

While many car manufacturers today seek to build cars with improved performance in terms of attributes such as speed and mileage, we sought to be a little differentiated in this aspect. As such, our project focuses on providing various "SMART" in-vehicle features that contribute significantly in increasing usage convenience for drivers by providing maximum level of automation, thereby requiring almost no human intervention. Apart from that, customers of contemporary society place increasing importance on the degree of customization in every product that they purchase. This has thus become one of the highest priority criterions they look to satisfy when shopping for almost any product. With this in mind, our "SMART" car has several features that are aimed at providing maximum customization for every driver so as to allow each driver to experience a unique sense of belonging to the vehicle. This has been achieved through the implementation of a friendly human-computer user interface. On top of providing customization, our "SMART" car has also been designed with the purpose of solving a problem that is existent with some of the contemporary cars.

Our "SMART" car's features can be broadly classified to come into one of three main sub-systems, the rain and headlights system, the incoming call system and the customized personalization system. The rain and headlights system consist of three key features; the rain sensing automatic wiper, automatic cold air intake valve action and automatic headlights operation. Based on the amount of rain intensity, the windscreen wiper operates automatically and its wiping speed varies as well. Cold air intake is a feature that exists in some of today's cars. It allows air to be drawn in from the outside into the combustion engines of vehicles instead of relying on recycled air drawn from within the vehicle, thereby improving engine performance. However, during rainy conditions, water may enter this cold air channel and can hydro lock the engine. In order to prevent this, our "SMART" car has come up with a neat solution. Through having a valve along the cold air intake channel and opening up this valve during rainy conditions, water can be prevented from entering the engine. This is analogous to poking a hole in a straw, if the hole is large enough, liquid cannot be sucked through the straw. The same principle is applied here. Finally for the headlights, their operation is also automatic and based on the ambient light intensity as well as the rain intensity as with heavy rain, visibility is decreased, requiring motorists to make use of their headlights.

The customized personalization system is aimed at providing maximum customization satisfaction for all drivers. In this system, each driver is allowed to set his/her preferred rear view mirror position, car seat position and favourite radio channel and program these into the system. Every subsequent time the same driver re-enters the vehicle, the preset seat and mirror positions and his favourite radio channel will be automatically loaded through detecting the driver's specific identity. The driver can also change his preferred seat and mirror positions and desired radio channel and re-program these into the system whenever he wishes to do so.

Finally there is the incoming call system. In this system, all the driver has to do is place his/her mobile phone on the holder near the call detection device. Then, whenever there is an incoming call, an LED will be made to flash and the radio volume will be automatically muted to facilitate the answering of the call by the driver via earphones or Bluetooth. Once the call is ended, the radio's volume will be resumed back to normal automatically. Now drivers can be saved of the trouble of having to manually lower radio volume every time they want to answer an incoming call while on the move.

Summing up, our "SMART" car, equipped with these features, hopes to create a new dimension in the car manufacturing industry as well as a unique selling point to attract potential customers.