

High Level Requirements

1. System must provide a means of GPS navigation
2. System must be able to play music off a local device (USB, onboard storage, etc)
3. System must store maps locally (for the GPS)
4. System must detect lane departure and alert driver
5. System must provide turn by turn navigation
6. System must have parking object detection and alert driver
7. System must be able to read and display vehicles On Board Diagnostic (OBD) data
8. System must be able to read and display music tag data
9. System must be able to display backup camera only when car is in reverse
10. System must be able to enable GPS avoidance (tolls roads, highways, etc)
11. System must be able to get system time from GPS

Glossary

1. Back Up Camera - Displays the video feed of the area behind the vehicle while the vehicle is conducting a parking maneuver
2. Global Positioning System (GPS) - Navigational system that uses satellites to pinpoint the latitude and longitude coordinates of a location
3. GPS Avoidance - Option that allows user to determine the type of route to be used in turn by turn directions
4. Head Unit - Provides interactive GUI that allows user access to various functions pertaining to the operation of a motor vehicle
5. Lane Departure Detection (LDD) - While the vehicle is in motion, if the driver drifts from their lane, the system will alert the driver with an audible sound so that the driver can correct their path
6. Local Storage - The system's local hard drive storage
7. Music Player - Program that reads and plays music files
8. On Board Diagnostics (OBD) - Standard used for reading vehicle's data (engine, emissions, etc)
9. Diagnostic Trouble Codes (DTC) - Error codes thrown by the car when it detects the engine operating outside of specification. These codes can be read through the car's OBD port
10. Parking Collision Detection (PCD) - Program that provides user audible alert informing user of proximity to another object during a parking maneuver
11. Tag - Metadata of a sound file, typically music, containing information such as Artist, Album, Length of Song, etc.
12. Turn by Turn Directions - Program that gives user directions to get from point A to point B utilizing GPS
13. User - Actor using the Head Unit