**Introduction**  
 The goal of this project is to build an Intelligent Car that will be able to follow a black line on a flat surface. The reason we created the iCar is for it to travel through a maze without the help of anyone as to demonstrate the potential of the autonomous car driving, and also because it is part of our culminating project. The iCar will only rely on itself to making it a self driving vehicle. This iCar system was created by Braulio, Matthew, and Mohammad. We were focused on creating all the components of the iCar together in an efficient way, starting with the basic hardware such as the arduino and gearbox, and writing and integrating the code shortly thereafter. Some components of the car, such as the motor driver and LDRs, are connected to the Arduino board so that they could work together to navigate along the black lines of the maze. With the code, it will be able to move along the maze on its own, turning in a specific pattern as to get itself along the whole map and back to the start.

**Features and Operation**  
 The main components of the iCar are the LDRs and LEDs, the L293DNE chip, the Arduino, and the Gearbox with the motors. The LEDs emit light that will be used with the LDRs to read whether a black line of the maze is present beneath it. LDR will read the amount of light that is reflected from the bottom of the surface and these different values will trigger the procedures that either keeps the iCar moving forward or initiates a turn or an adjustment to the iCarto keep it moving straight . The L293DNE chip is a like a switch that powers the motors on/off. The Arduino is the brains of the iCar because it is controlling everything. It will either output information (for the motors) or have information inputted in it (from the LDRs). The gearbox is what holds the motors and has the wheels connected to it.   
 The maze is 2D and is on a white surface with a black line that guides the iCar. The white surface is a Bristol board with the black line being electrical tape. The tape is configured and aligned using primarily right angle turns, with some sharper angles as well for the iCar to turn along. The iCar moves along the lines and at each intersection it will go the corresponding direction and eventually return it to the starting point, which acts as the exit. The car begins to move as soon as it is powered on, and will begin to navigate the maze once it is placed at the start of the black line.

