

The Three Commas

Project Statement

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Together The Three Commas, shall be designing a remote control car except it shall be controlled through an iPhone. To control it with an iPhone we shall develop an iOS specific app. The entire car concept is based on the Freescale Cup Challenge. The main modification is the utilization of the iPhone to control versus the autonomous controls in that competition. It is possible, depending on time limitations, that instead of an iPhone app that we can create an application that can work across multiple browsers.

A printed circuit board (PCB) shall consist of the light emitting diodes (LED's), a speaker, and pieces the microcontroller and additional modules can plug into. The PCB shall incorporate all the different modifications into the design. The car shall utilize LEDs for signaling different steps of the operation such as turns and brakes. The LEDs shall turn on and off depending on how the car is being controlled, with LEDs for brake lights, directional signals, and to signal acceleration.

We shall utilize the Arduino Uno microcontroller to implement the hardware. This Uno is capable of incorporating additional modules. In addition, it has 14 input/output pins and 6 analog inputs for us to write and read to. The software to control the hardware will be written through the open-source Arduino Software integrated development environment (IDE). Apple Xcode shall serve as the integrated development environment for the team to write the iPhone application software. The integrated development environment is Bluetooth Low Energy compatible and can integrate the Arduino hardware and into our application. Its Core Bluetooth framework makes it easier to incorporate into the design.

Our group is planning to utilize a wireless module and a SD card module. The WiFi module, ESP8266, shall communicate with the iPhone. The application shall send and receive information to and from the Arduino Uno. With the additional SD card module, which shall let us store music on a car to play as the device moves. Alternatively, the Arduino Uno can hold one to two seconds worth of music on its own, enough to play a car horn sound while driving.

The following images are concepts of what we shall be designing. Image 1 shows a car being controlled by an application on an iPhone. We want to design a similar app to the one shown. There shall be controls to move the car in any direction, controls for the speaker, and controls for the turn signals. Image 2 shows the car concept we will mimic. The car shall have motors, a chassis, circuitry, and tires all exposed. The motors shall be soldered onto the PCB board, we may have to add a second motor, one for each tire, in order to control the car effectively. starting next week we will be creating the full schedule and a bill of materials summary. We will also be researching for more details on the parts and the procedure to create an ios application.

Image 1:

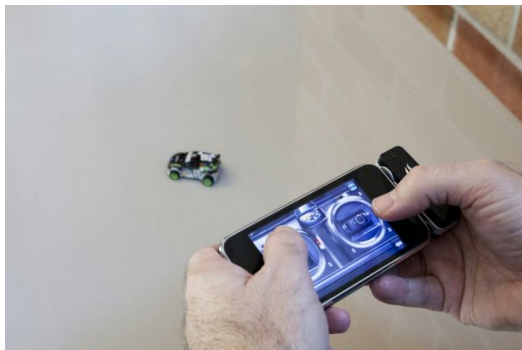


Image 2:

