CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

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Project Number

J1025

Project Title

The Road Safe: A Box to Lock Up Your Phone while Driving

Abstract

Objectives

At any given moment there are approximately 660,000 people on the phone behind the wheel, and also 35% of teenagers text and drive even though they know it is dangerous. This is causing twenty-five percent of all car accidents, leading to the result of severe injuries and even some deaths. The purpose of my project is to make a contraption that will only allow a car to start when you put your phone in a box and close it. This is to avoid the distraction and risks of being on the phone while behind the wheel. In result, many fewer car accidents will occur and also many fewer parents will fear the safety of their kids on the road.

Methods

1 rectangular Wireless Charger (with LEDs and cable), 1 Lever switch, 1 Car to USB plug adapter, 1 Box At least 17cm ~ 13cm ~ 10cm, wire, 1 Arduino Uno, Thin Wood Sheets, Dummy Car For testing (Works using a USB fan and ignition switch.), 1 5-Volt Relay, Arduino Programming Software, QI Receiver, One Metal elbow bracket, Small one-inch relay.

Results

During the process of collecting data, I discovered the majority of the data was successful. In the testing phase, the box had no issues due to the electronics, and it didn t break since it was finally put together proving the durability of the design is sturdy and would last a long time in regular use in a car. According to the data that I collected the only issue that appeared during the data collection phase was user error and not the box itself once again probing the box is built well. The average percentage for success is 96.25% chance leaving only a 3.75% chance of fail that most likely will be user error.

Conclusions

Through my engineering process, I have discovered how to use a wireless charger LED connected to an Arduino with a switch to start a car. The way the box works is by having wires connected to the LED that turn on when the wireless charger is charging then lead those wires to an Arduino. The Arduino is programmed to sense when a voltage is flowing from the led then allow voltage to flow through the car. Then before the wires get to the car there is a switch that only is closed when the box is closed. This box could help make the road even safer and save many lives. With this box hooked up in a car, it makes the risk for drivers to text on the road disappear. I had some setbacks while building this project but in the end, I made it all happen successfully.

Summary Statement

In my project I made a box to get rid of the issue of texting and driving, the box makes it so the car can only turn on when a phone is placed inside the box, starts charging, and is closed.

Help Received

I designed and built the box myself, but I got help understanding how to program and understand how to use some of the components from my dad and older brother.