CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)

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Project Number

J0810

Project Title

CESSIL: Cycling Equipment Signalling Stoplight Illuminesence LEDs

Abstract

Objectives/Goals

The objective of our project was to develop an indicator system to help bikers signal their turns and stops without having to take their hands off the handlebars.

Methods/Materials

All of the following were materials used to build the project: 15.7 meters of 30 gauge copper wire, one 10cm by 5cm printed circuit board, one 12.5cm by 5cm by 7.5cm foil cake tin, one roll of black electrical tape, 3 momentary pushbutton switches, 10cm of steel wire, a can of black spray paint, a strip of Velcro, one 10cm by 5cm piece of foam, eight 2mm regular red LEDs, two 5mm jumbo red LEDs, 2 AA batteries, 1 battery connecter, 1 AA battery holder, one 0.5m metal dowel and one bike. These tools were used in building the product: a wire wrap tool, a wire stripper, pliers, wire cutters, a tape measure, and scissors. We tested our invention as follows: one of us would stand behind the display of LEDs while the other was turning them on. The person standing behind the display would keep walking backward until he could not see the LEDs. Then we would measure the distance.

Results

All in all, our project was 75% successful. It worked beautifully at night, up to 50m. But at daytime, someone could only see the lights at 8m. It worked well in semidarkness, but it definitely worked better at nighttime.

Conclusions/Discussion

This product will help bikers signal, thus making cycling safer. This product would work best in bad weather, e.g. overcast and rainy days as well as at night. The implications are reasonably successful. This invention, with some help, could seriously cut down on the number of cyclists killed. Because it would make cycling safer, it might encourage more people to bike instead of drive and therefore cut down on carbon emissions. We learned many things while working on our invention. We learned that engineering projects take time, intelligent and critical thinking, and effort. All these things separate good engineers from bad engineers. In addition, it is great to plan out the project clearly and address the budget, criteria, and constraints.

Summary Statement

Our project was to develop an indicator system to help bikers signal their turns and stops to make biking safer.

Help Received

Mother helped with project board; Father showed us how to wire-wrap; Neighbor helped chose LEDs