

Bike Project #7 (Team Garfield)

Course Instructor: Brandi Coker

Team Members: Jazmin Cartagena, Joseph Karam, Evan Markwell

Design Problem: Develop a system to add automatic turn signals and brake lights for use with a bicycle.

Design solution: Four turn signals, Two front and two rear, one brake light with five light stage, two hall effect sensors, one in the front for turn input, and one in the rear for speed input.

For this project our team worked closely together to create a well rounded system. To begin we constructed our block diagram to give us a high level idea of how we would want our system to work. From there we moved to more individual breakdowns all while working closely together on the designs. Evan worked on the Hall effect sensors schematics and how they would function with the code that Joseph was creating. Joseph was in charge of the microcontroller. He worked closely with Evan on the Arduino timer counters to control light blinking. Jazmin worked on the main enclosures and more of the mechanical side of the project. Over the 7 weeks we were working on this project we worked over 195 man hours. We made no major changes to the project from the original design created at the beginning. Overall we are satisfied with the quality of the project.

Key lessons you learned as a team:

- Dealing with different personalities in a team
- Team time management
- Project coordination
- Communication as a team

Project Timeline

Task	Person	Description	13	14	15	16	17	18	19	20
Magnet Sensors Design	Evan	Designing a speedometer to talk with the microcontroller								
Enclosure Design	Jazmin	Designing the enclosure for the microcontroller and battery								
Headlight Assembly	Joseph	Assembling the 3-light headlight system								
Magnet Sensors Assembly	Evan	Building the speedometer								
Taillight Assembly	Joseph	Assembling the 3-light taillight system								
Enclosure Assembly	Everyone	Building the enclosure for the microcontroller and battery								
Button Assembly	Jazmin	Assembling buttons to control turn signals								
Coding	Evan/Joseph	Writing code for the microcontroller								
Sautering	Jazmin	Sautering all connections								
Testing Waterproofing	Joseph	Testing the system's waterproofing								
Testing Light Duration	Joseph	Testing the system's light duration								
Project Expo Showcase	Everyone	Demonstrate project function at expo								
Project Closing	Everyone	Finish closing tasks and finalization for project.								