Needs Statement:

While on the move, the use of small devices such as flashlights and camera can take up a hand that would otherwise be free to focus on the task the user is pursuing. A device that provides various functions such as these, while allowing the user to remain hands-free, is required.

Objectives Statement:

The objective of this project is to create a small drone capable of automatically following the user while performing various functions such as illuminating its immediate area with light. Utilizing inexpensive components, the team will create an autonomous, obstacle-avoiding drone with these capabilities.

Background:

Drones are versatile, and contain microcontrollers capable of providing a variety of peripheral functions to a user. Although there are other solutions to the problem of having the use of small electronics take up one or both of a user’s hands, an autonomous drone has the potential to perform these functions better thanks to a larger battery, a remote perspective, and the lack of need for input from the user.

Marketing Requirements:

* Affordable – minimize price.
* Battery life – drone should be able to operate for a minimum of two hours.
* Speed – drone must be able to keep pace with a person on a bicycle.
* Functionality – drone must provide multiple functions to the user.
* Accurate – drone should be able to maintain a close following distance.

Objective Tree:

