Functional Requirements:

1. System must detect when a car gets to the light
2. System must have variable for light color
3. System must have variable for amount of cars
4. System must be able to change the color of light
5. System must turn yellow for three seconds before turning red
6. System must let certain cars through at certain times
7. System must have a timer to tell how long until a light changes
8. System must detect the number of cars at each part of light
9. System must show cars at light
10. System must know where the cars are at
11. System must know which direction cars are going
12. System must allow cars to go each direction
13. System must show cars go in different directions
14. System must let a certain amount of cars through and then turn red
15. System must detect new cars at light

Nonfunctional Requirements:

1. System shall let cars through as fast as possible
2. System shall allow cars through in a safe way
3. System should work error free no matter the amount of cars
4. System should not be able to have the light changed other than based on conditions of cars
5. System should show movement of cars at light