iGoFast Functional and Non-Functional Requirements

Functional:

1. The system must prompt vehicles to go
2. The system must prompt vehicles to slow down
3. The system must prompt vehicles to stop
4. The traffic light automation system should be able to determine vehicle line-up
5. The system must be able to adjust signal priority based on traffic congestion
6. The system must not allow perpendicular lanes of traffic to simultaneously go (excluding right turns)
7. The system must allow left turns of parallel lanes to go at the same time or yield to oncoming traffic
8. The system must display color-blind friendly colors
9. The system must display signals to pedestrians for when to cross
10. The system must be able to account for manual button pressing for pedestrians crossing in priority
11. The system must give pedestrians 25 seconds to cross
12. The system must have a countdown timer display, so pedestrian is aware of how much time before light changes
13. The system must be in sync with near by traffic light systems for smooth flow of traffic
14. The system must be able to detect if vehicle is in the intersection after light turned red
15. The system must be able to withstand various weather conditions and power outages

Non-Functional

1. The system should avoid causing collisions (secure and reliable)
2. The system must be able to update in real time (response time)
3. The system must maintain a low margin of error (high reliability)
4. The system must be able to run indefinitely (availability)
5. The system should have a simulated environment display for testing