iGoFast Requirements

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Non-Functional Requirements

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

Functional Requirements

1. The traffic light automation system should be able to determine vehicle line-up.
2. The system must be able to adjust signal priority based on traffic congestion.
3. The system must not allow perpendicular lanes of traffic to go simultaneously.
4. The system must display color-blind friendly colors.
5. The system must prompt vehicles to stop.
6. The system must prompt vehicles to slow down.
7. The system must prompt vehicles to go.
8. The system must change multiple traffic lights at staggered times to control traffic flow.
9. The system must account for manual button pressing for pedestrian crossing in priority calculation.
10. The system must signal for foot traffic to cross.
11. The system must count down to foot traffic to warn them.
12. The system must signal for foot traffic to stop.
13. The system must allow for vehicles in turn lanes to have designated times to turn.
14. The system must allow for manual control in the event of a special occasion.
15. The system must have a fail-safe in the event of a power outage.