

# E1.04 - PLC Traffic Light

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Dr. Stevens



## Meet the Team

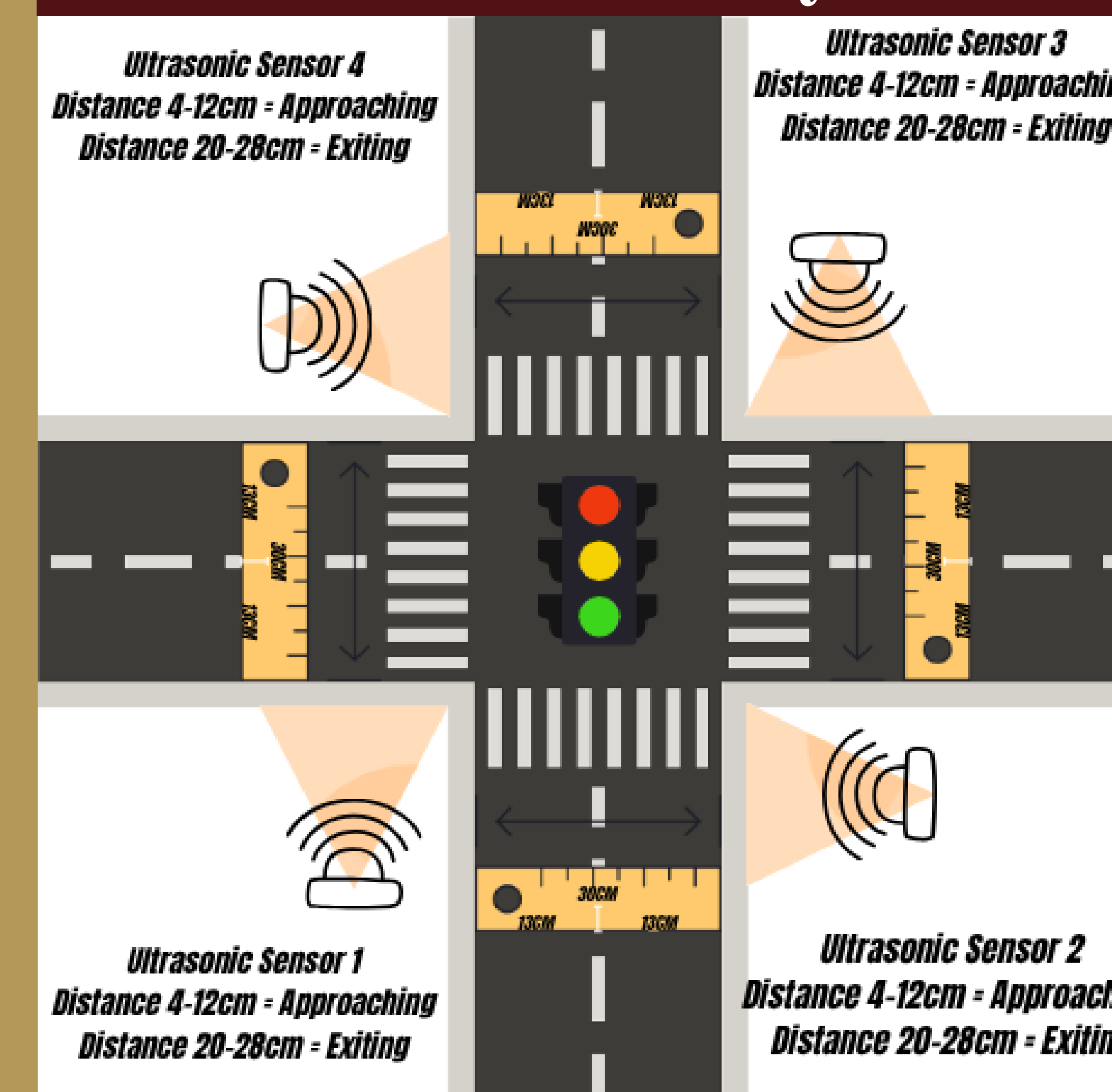


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## Cost

Component	Quantity	Cost
Lithium Battery	1	\$4.50
Battery Snap Clips		
Arduino Uno	1	\$27.60
Ultrasonic Sensor	4	\$16.00
<b>Total</b>		<b>\$56.10</b>

## Intersection Layout



## Overview

Create an autonomous traffic light, based in OpenPLC, that detects incoming traffic and changes to optimize traffic flow. As well as being able to communicate with other traffic lights.

## D1 Requirements

- Individual Sub-system functionality demonstrated by simulation in OpenPLC and HMI model
- Simulation demonstrating car detection response in each direction and sequential traffic light communication and response
- Spice simulation of LED driver circuit design
- Controller selection and basic functional mockup
- Light electronics PCB schematic and PCB design complete and ready for ordering.

## D1 Achievements

- LT spice Driver circuit mockup
- Fully functional OpenPLC Ladder logic.
- HMI simulation running OpenPLC
- Breadboard mockup of traffic light using controller

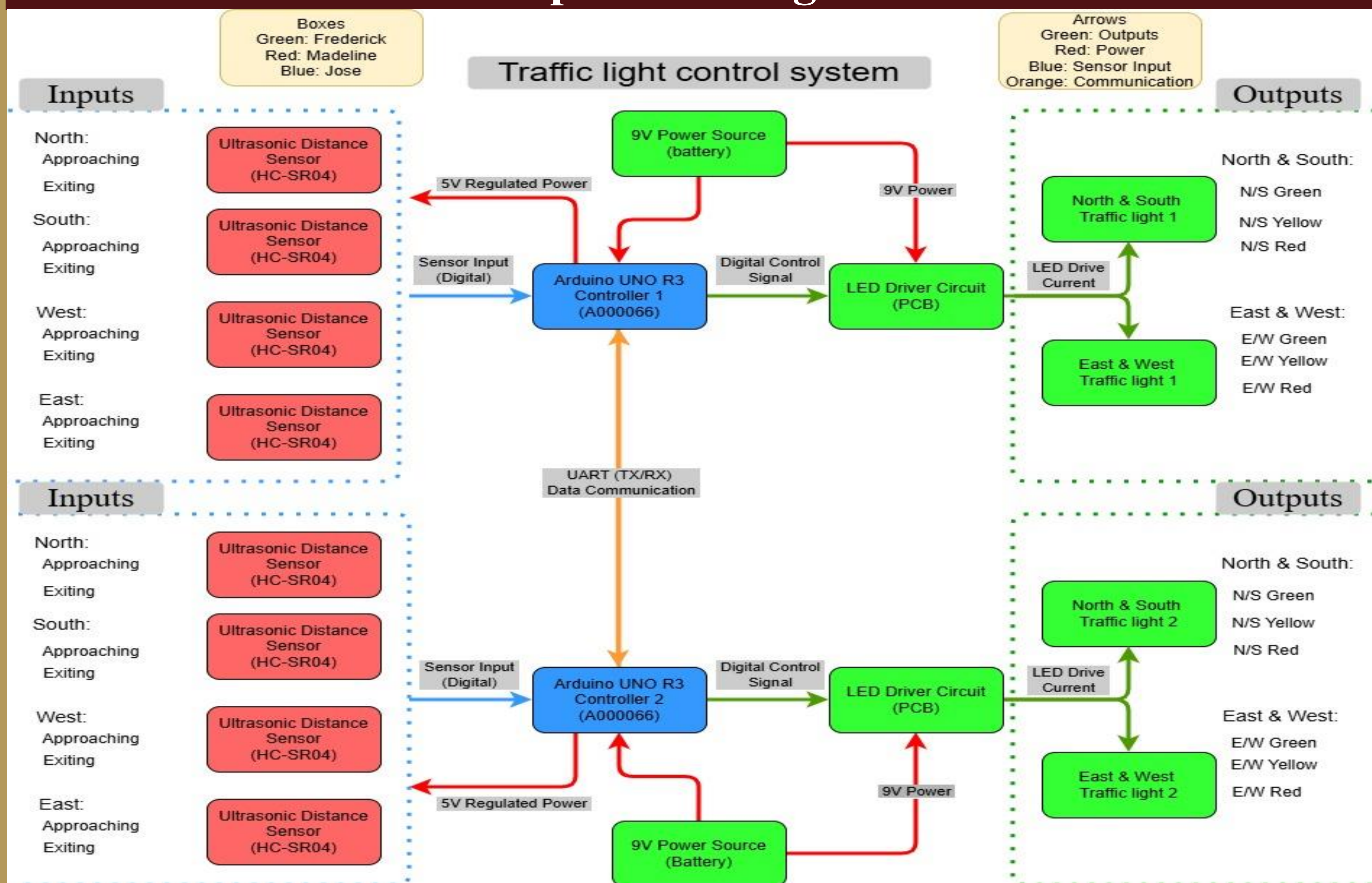
## D2 Plan

- Full design, integration, and working physical models with PCBs.
- Demonstrating car detection response and sequential light operation.
- Optimization of light operation and bot wait time

## Acknowledgements

Sponsor: Dr. Stevens  
Faculty: Dr. Stevens  
D2 Mentor Team(s): 2.08 Smooth Operators, 2.05 Mazed & Confused

## Top Level Diagram



## Cycles Diagrams

