1. Project number: S19-26

2. Project title (as will appear on the poster): Smart Traffic Light

3. Team members:

Ronald Tudorache
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4. Advisor name:

Michael Caggiano

5. Up to 5 keywords that will help to classify the project scope:

Density Based Traffic Control, Arduino micro-controller, Inductive Loops, IR sensors, Vehicle Detection

6. Project abstract (up to 250 words) to be shared with judges:

The objective of this project is to change green light timing based on the amount of vehicles present at the intersection while waiting for the light to change. This will be done by the use of inductive loop sensors as well as IR sensors that both will be constructed by our team. The reason for two different sensors is to compare the functionality, effectiveness, advantages, disadvantages, as well as cost between the two sensors. The Arduino microcontroller receives information from the sensors about the state of traffic before the light changes to green and adjusts the light timing accordingly. This information is given by an IR sensor that is placed closer to the head of the intersection and an inductive loop sensor that is placed further back on the same road. The purpose is to vary the green light time based on the sensors that are triggered when a vehicle is sensed. For example the green light time will be five seconds for normal density, ten for medium and twenty for extreme density. In basic terms, the farther back the cars have lined up, the longer the green light time will be for that lane of traffic. This project is implemented in a 4’x4’ small scale model that comes complete with eight sensors total, a traffic signal, and model cars for a proper demonstration of our concept.