

## **Intelligent Traffic Light Management System (ITLMS) User Guide**

The ITLMS comes with a web-based user interface in order to demonstrate the use of the system to estimate green-light timings at traffic junctions.

Follow below steps to setup ITLMS:

### 1. Setting up the Flask Server

- git clone <https://github.com/validation7407/IRS-MR-RS-2019-09-22-IS1FT-GRP-Validation7407-ITLMS.git>
- Open up command prompt for Windows or Terminal for Linux
- Navigate to the System sub-folder the cloned ITLMS repository folder
- Enter 'python app.py' in order to start the Flask server
- Use your web browser to navigate to the ITLMS User Interface <https://localhost:5000>

## 2. Using the ITLMS Demonstration Interface

- Select the type of junction: "**T-Junction**" or "**Cross-Junction**"
- For each of the possible directions as indicated in the figure on the left, enter the number of **Lanes**.
- Enter the current **No. of Vehicles** in each lane, separated by a comma e.g. Lanes: "2", No. of Cars: "3,4" or Lanes: "3", No of Cars: "5,10,15"
- Enter the arrival rates of cars in that direction (cars/sec) in **Arrival Rate**
- Enter in the number of vehicles in the right-turning lanes in **Right Lane**
- Click "**Submit**" to view the results.

**Traffic Signal Time Estimation Tool**

**User Guide**

1. Select the type of junction: "T-junction" or "Cross-junction"
2. For each of the possible directions as indicated in the figure on the left, enter the number of **Lanes**.
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4. Enter the arrival rates of cars in that direction (cars/sec) in **Arrival Rate**
5. Enter in the number of vehicles in the right-turning lanes in **Right Lane**
6. Click "**Submit**" to view the results.

Select the type of junction **2-Way Junction**

Junction Type: **Cross Junction**

**Direction 1**  
Lanes:  No. of Vehicles:  Arrival Rate:  Right Lane:

**Direction 2**  
Lanes:  No. of Vehicles:  Arrival Rate:  Right Lane:

**Direction 3**  
Lanes:  No. of Vehicles:  Arrival Rate:  Right Lane:

**Direction 4**  
Lanes:  No. of Vehicles:  Arrival Rate:  Right Lane:

**Submit**

**Traffic Signal Time Estimation Tool**

Junction Type: **Cross Junction**

**Rule-Based Timing Assignment**

Direction 1 & 2 (EW) - Straight Timing: 80.0	Direction 1 & 2 (EW) - Right-Turn Timing: 35
Direction 3 & 4 (NS) - Straight Timing: 97.5	Direction 3 & 4 (NS) - Right-Turn Timing: 4

**Genetic Algorithm Timing Assignment**

Direction 1 & 2 (EW) - Straight Timing: 79	Direction 1 & 2 (EW) - Right-Turn Timing: 6
Direction 3 & 4 (NS) - Straight Timing: 45	Direction 3 & 4 (NS) - Right-Turn Timing: 10

**Submit**

Integration with external road traffic sensor systems or other inputs sources can also be done by passing these inputs to the Flask server through a HTTP POST request.