

# **Intelligent Traffic Lights Control System**

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# Focus Points

1. Problem of Traffic Inefficiencies
1. Intelligent Transport Systems - Vehicular Networks
1. RFID technology in ITS
1. System in Development

# Traffic Congestion

Traffic congestions, accompanied by unpredicted emergencies and accidents are Transportation Inefficiencies.

Outcome:

- losses of time
- decrease in the level of safety for both vehicles and pedestrians
- high pollution
- degradation of quality of life
- Huge waste of nonrenewable fossil energy

# “mobile parking lots”



# Problem of Conventional Traffic Light System

Traffic Congestion as a result of the conventional Traffic Light System

## Effects

1. Poor productivity: long waiting and travelling time
2. Pollution of environment
3. Ineffective Traffic Flow :  
Emergency, Police and Dignitary Vehicles



# Intelligent Transport System (ITS)

ITS tools that allow technology to improve and optimize the transport systems.

## Purpose:

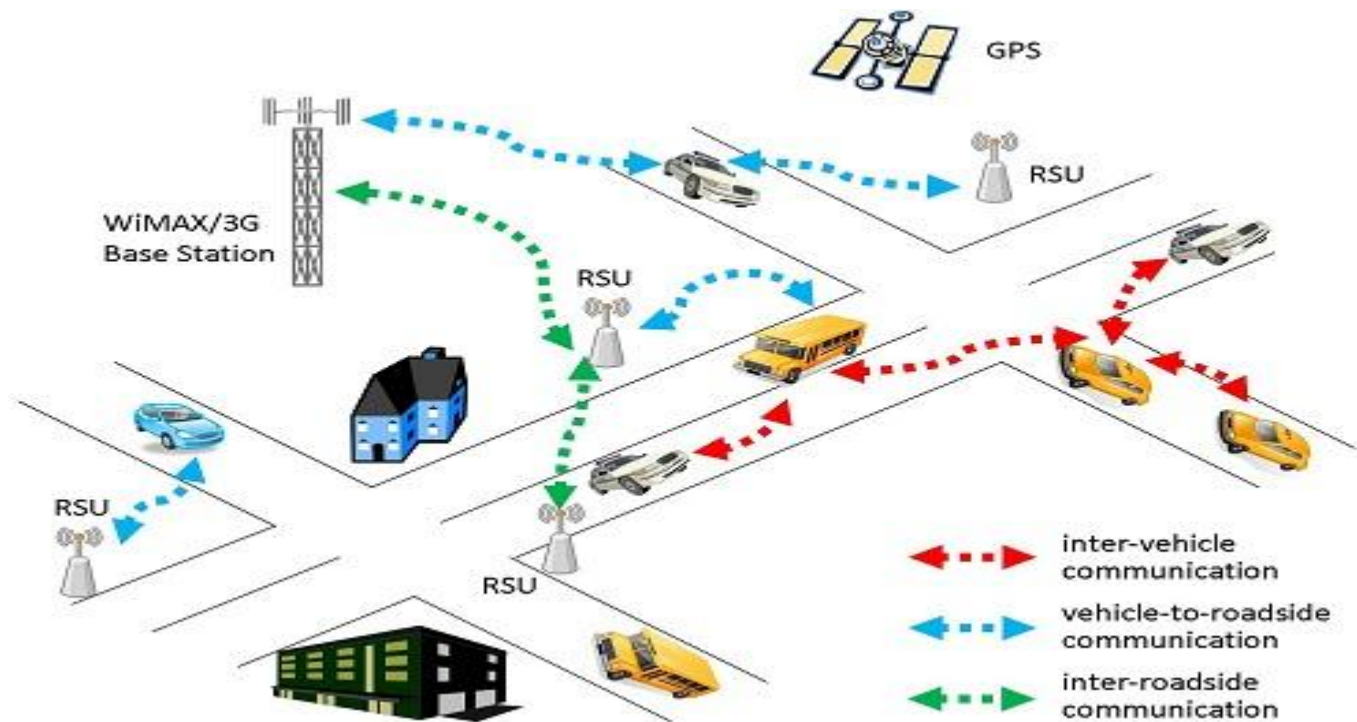
Safety, efficiency, Environmental concerns and convenience of traffic and transport

Roadside units are fixed base stations

Wireless Sensors : GPS, Microwave, RFID, Infrared

Vision Sensors : CCTV

# Vehicular Networks





# RFID technology

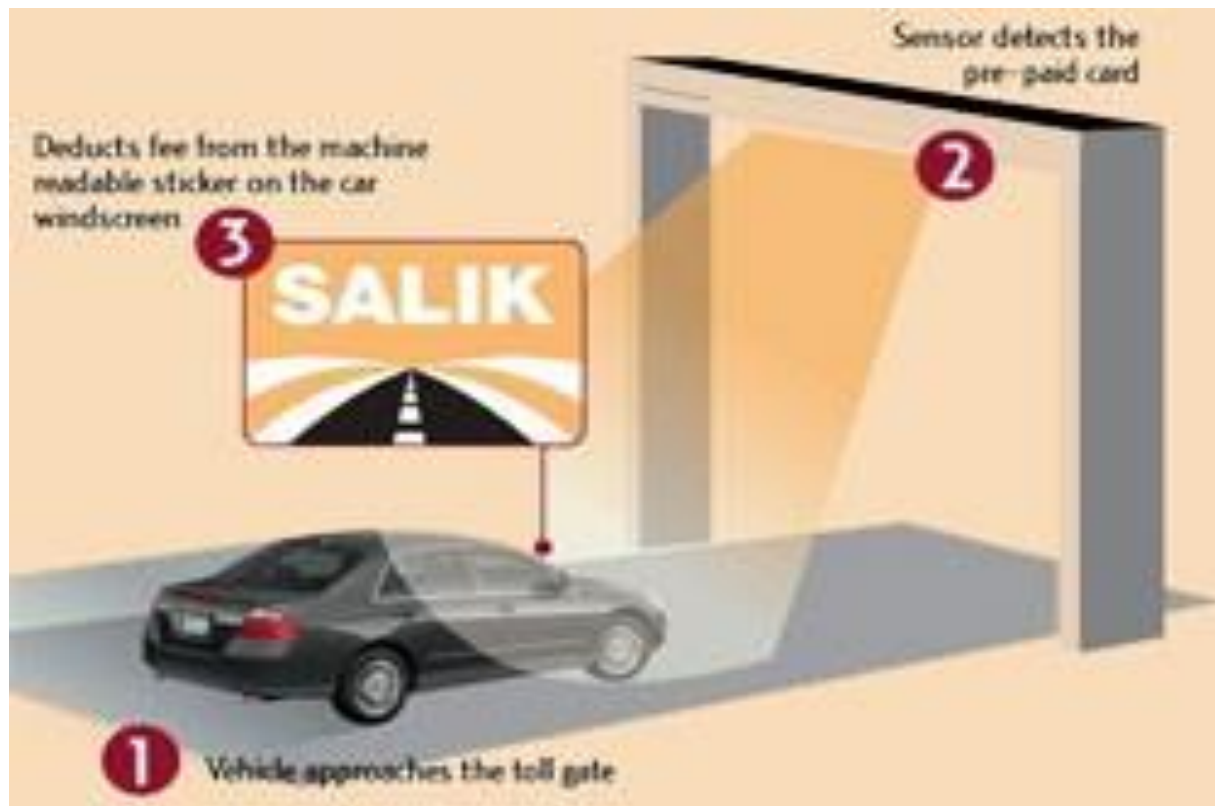
Multi-object recognition and long transmission range

Passive vs Active tags.

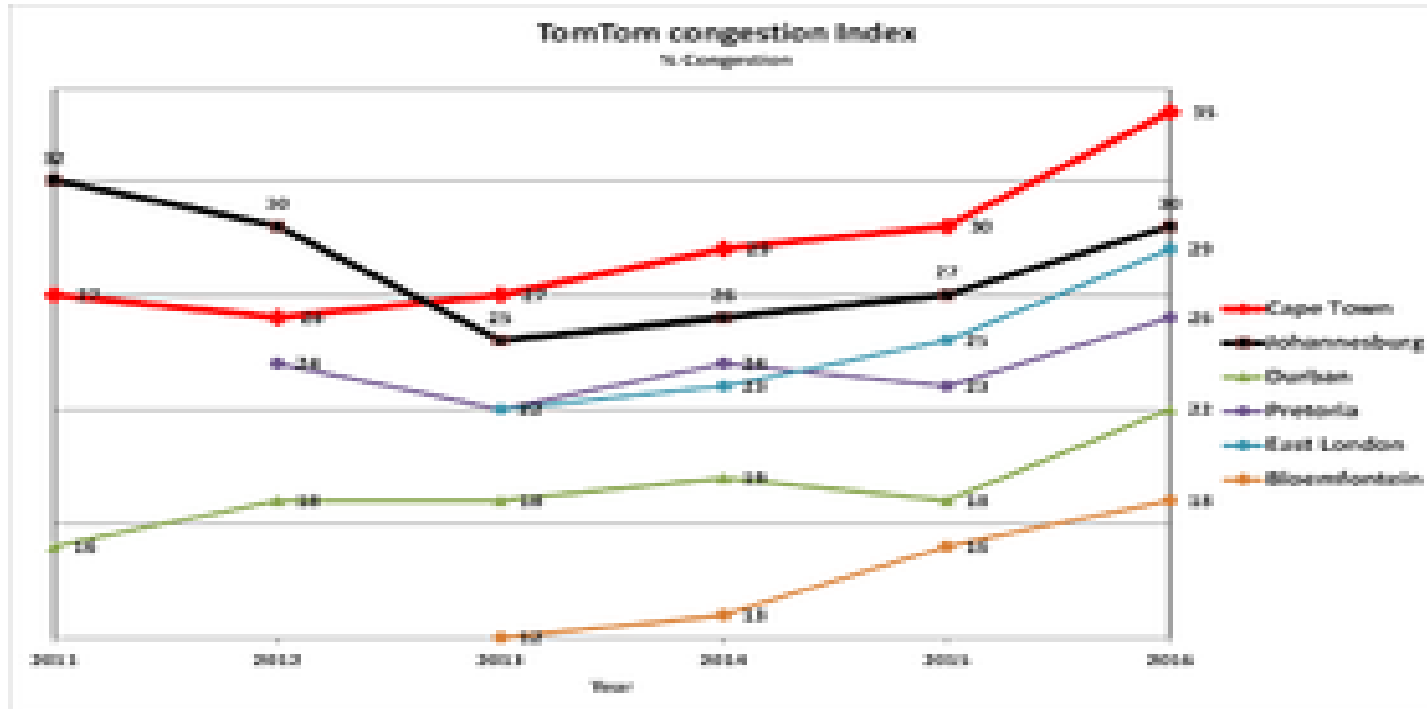
**Type 1** is where RFID readers are installed on RSU and tags are mounted on vehicles for example salik RFID toll

**Type 2** is RFID readers are attached to vehicles and RFID tags are deployed on road surfaces or roadside unit.

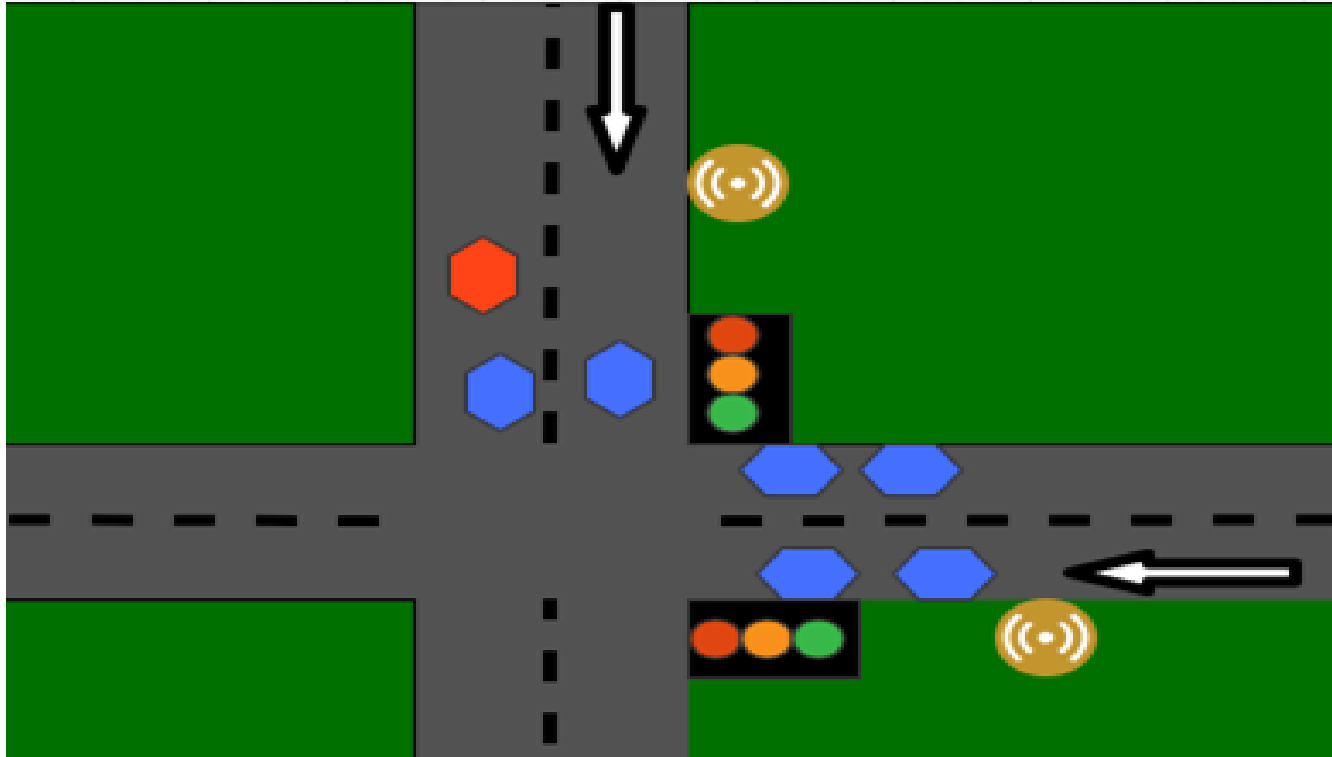
# Salik toll system



# Gauteng Freeway Improvement Project (GFIP) in South Africa

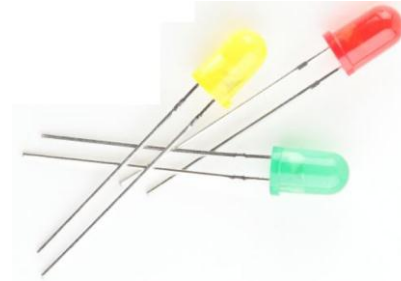


# Prototype Environment





RFID reader



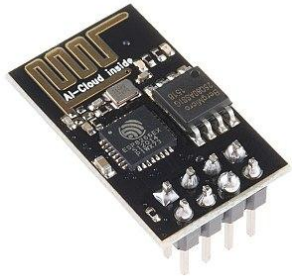
Led pins



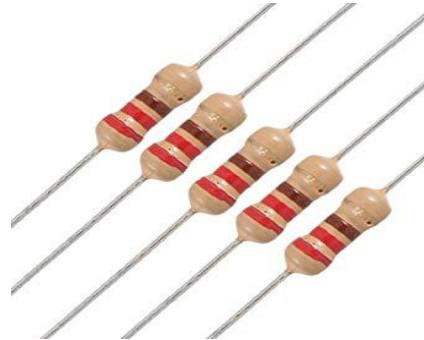
RFID tags



Connecting Wires

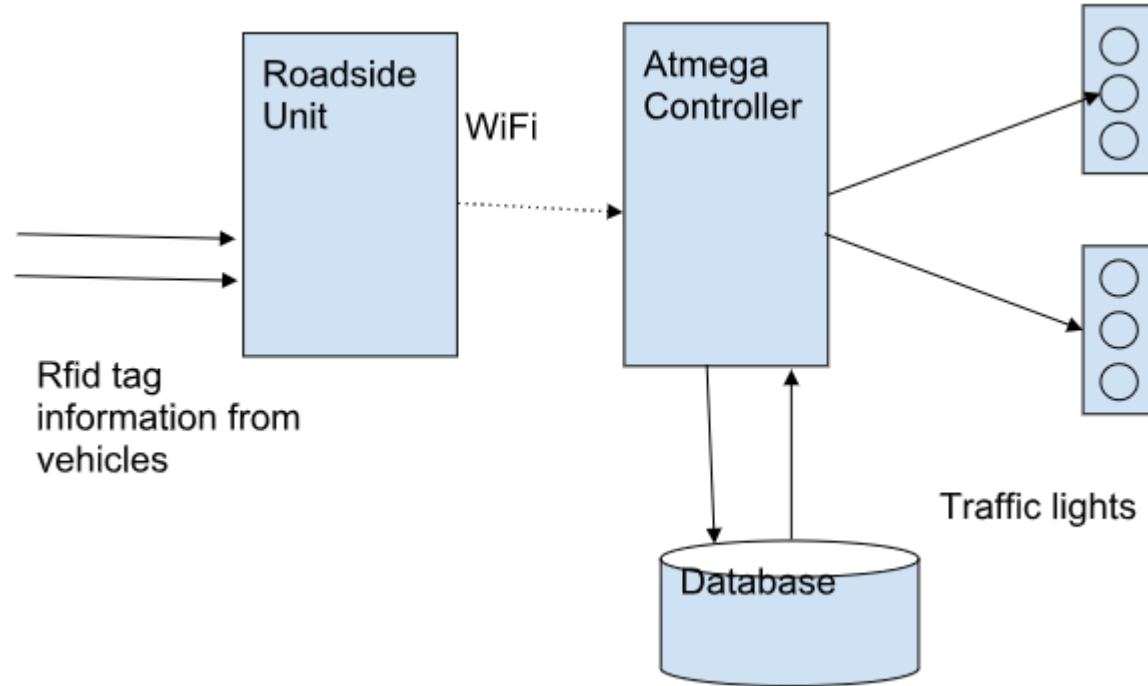


WiFi module



220 ohm Resistor

# System Design



# Scope of the proposed System

- The vehicles should be embedded with RFID tags.
- The traffic light system will support two junctions.
- The parameters measured will be time of arrival and count at a particular time across the road.
- Pedestrian mobility is not targeted in this research paper.
- Social culture of drivers is not considered.

**Thank You!**

**Questions?**