IMPLEMENTING INTELLIGENT TRAFFIC CONTROL SYSTEM FOR CONGESTION CONTROL, AMBULANCE CLEARANCE AND STOLEN VEHICLE DETECTION

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• **Abstract** -It presents an intelligent traffic control system to pass emergency vehicles smoothly. Each individual vehicle is equipped with special radio frequency identification (RFID) tag (placed at a strategic location), which makes it impossible to remove or destroy. We use RFID reader and microcontroller based system-on-chip to read the RFID tags attached to the vehicle. It counts number of vehicles that passes on a particular path during a specified duration. It also determines the network congestion, and hence the green light duration for that path . In addition, when an ambulance is approaching the junction, it will communicate to the traffic controller in the junction to turn ON the green light. We use microcontroller based system on chip for wireless communications between the ambulance and traffic controller.

• **Index Terms** – NODE MCU , LED Display, RFID Tag, RFID Reader, Infrared(IR) SENSOR

I .INTRODUCTION

India the second most populous Country in the World and is a fast growing economy , with globalization the problem of congestion on highways and in cities is becoming more and more acute. The goal of intelligent traffic management systems is to achieve improvements in mobility, safety and productivity of the transport system through integrated application of advanced monitoring . Intelligent management of traffic flows can reduce the negative impact of congestion. Technologies like ZigBee, RFID and GSM can be used in traffic control to provide cost effective solutions. RFID is a wireless technology that uses radio frequency electromagnetic energy to carry information between the RFID tag and RFID reader. Some RFID systems will only work within the range inches or centimeters, while others may work for 100 meters (300 feet) or more.

II. Literature survey

An Intelligent Traffic Control and Management System utilizes the components like RFID, IR sensors, NodeMCU, and so on. It likewise comprises of modules for

- Allowing section of emergency vehicles viz Ambulance, VIP, police, Fire engines and so forth
- Enabling clients to track their stolen or lost vehicles.
- Help individuals to get data about the activity traffic in particular zone
- RFID labels are utilized for novel ID of vehicles and IR sensors are utilized to getthe vehicle tally.

An intelligent traffic control system to pass emergency vehicles , congestion control ,stolen vehicle detection. Each individual vehicle is equipped with special radio frequency identification (RFID) tag (placed at a strategic location), which makes it impossible to remove or destroy. RC522 RFID to read the RFID tags attached to the vehicle to display the count we use I2C LED DISPLAY. It counts number of vehicles that passes on a particular path during a specified duration. It also determines the network congestion, and hence the green light duration for that path. If the RFID-tag-read belongs to the stolen vehicle, then a message is sent using GSM SIM300 to the police control room. In addition, when an ambulance is approaching the junction, it will communicate to the traffic controller in the junction to turn ON the green light.. The prototype was tested under different combinations of inputs in our wireless communication laboratory and experimental results were found as expected.
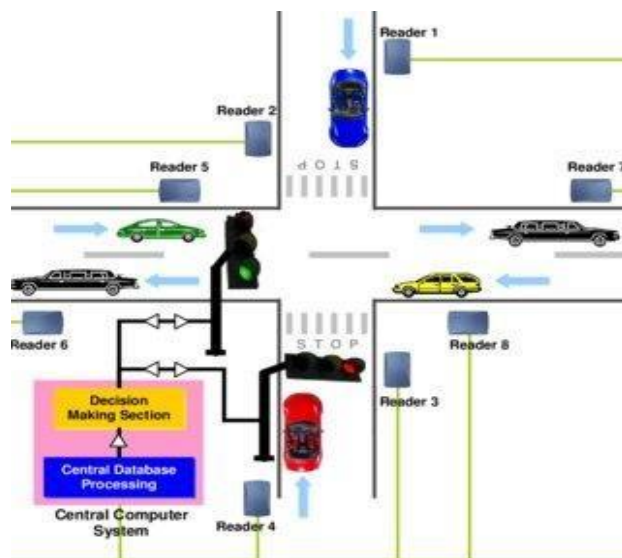
III. EXISTING SYSTEM

- They are using traffic system which is not capable to control the traffic becausetraffic is major issue in our Country, especially in urban areas.
- This traffic congestion results in many challenges.
- They are using the systems that do not identify the stolen vehicles.
- Emergency vehicle like ambulance, fire brigade, police cars face lots of problem toreach their destination because of traffic Jam, resulting loss of human lives.

IV. PROPOSED SYSTEM

Proposed system has following important concepts:

- In this system, traffic clearance is done by turning Red signal into Green signal. We prove concept of "Green wave". Along with this we identify stolen vehicle by using very convenient RFID technology.
- If stolen vehicle detected, system gives alert indication through buzzer.
- System is provided by sending the Message with the help of GSM to Police station.
- In this system we Use Different RFID tags for identify ambulance, stolen vehicle.
- If Red signal is on, and IR sensor activated system give buzzer alert to Trafficpolice man.
- This is unique system which facilitate good solution to solve traffic congestion

V.SYSTEM ACHITECTURE

Block Diagram

Flow Diagram
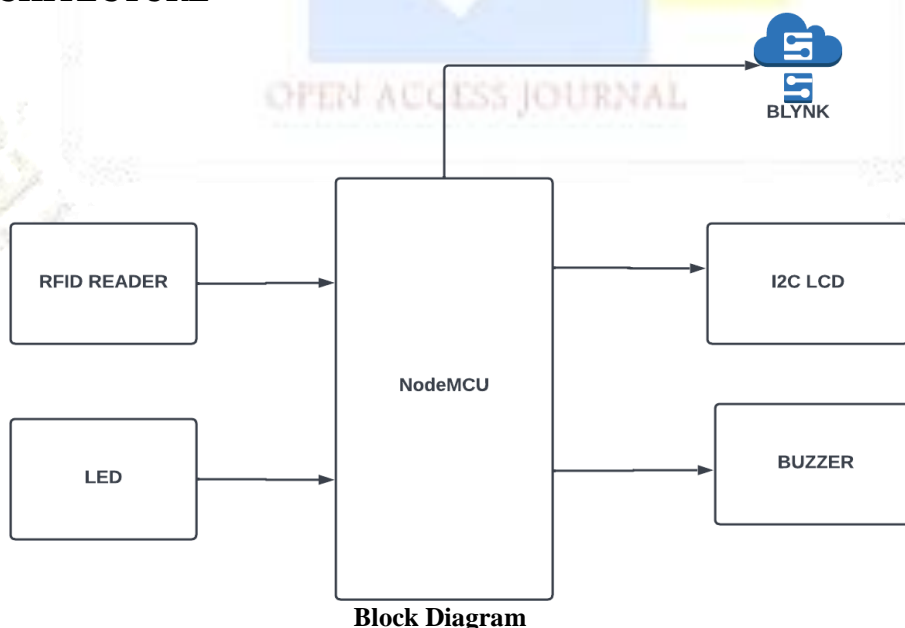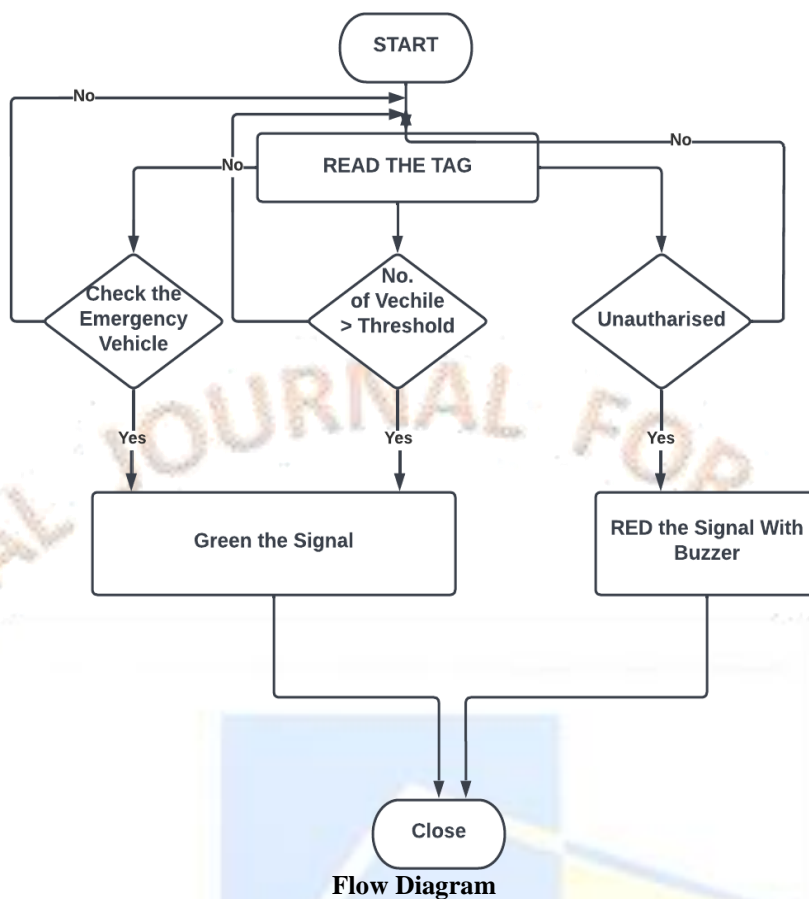
VI. Result Analysis.

The main aspect of Traffic Control System is RFID Tags which differs in the vehicles like in case of Emergency purposes(Ambulance) or stolen vehicles. When RFID Tags comes in the range of RFID Reader module it detects and read the RFID Tag. When a clock goes from 1 to 0, the vehicles in the range of RFID Reader sends 8-bit data to the Reader module. Simultaneously 8-bit data also gets receiver by the Reader module which helps in the glowing of Traffic lights depending on the conditions over the junction.

The function of Traffic Control System performs in mainly into three categories as follow
- Congestion Control
- Ambulance Clearance
- Stolen vehicle

VII. CONCLUSION

With automatic traffic light control supported the traffic density within the route, the manual effort on a part of the traffic policeman is saved. because the entire system is automated, it requires very less human intervention. The vehicle information is stored within the database so it's easy to trace the stolen vehicle. Also SMS are going to be sent in order that they will prepare to catch the stolen vehicle at subsequent possible junctions. Emergency vehicles like ambulance, fire trucks, got to reach their destinations at the earliest. If they spend tons of your time in traffic jams, precious lives of the many people could also be at risk.With emergency vehicle clearance, the traffic light turns to green as long because the emergency vehicle is waiting within the traffic junction. The traffic signal turns to red, only after the emergency Vehicle passes through traffic signal. also as if any vehicle violate the red light is fined automatically. Further enhancements are often done to the prototype by testing it with longer range RFID readers

VIII. REFERENCES

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