



Scada System in Traffic Control

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ABSTRACT: The main aim of designing this project "SCADA SYSTEM IN TRAFFIC CONTROL" is that the traffic controllers have the ability to adapt to the real time data from detectors to perform constant optimizations on the signal timing plan for intersections in a network in order to reduce traffic congestions, which is the main concern in traffic flows control nowadays. So, the parameters to be measuring within this project are: (1) Speed Detection (2) Traffic Signal Crossing (3) Weigh in motion

Keywords: IC- Integrated circuit, ITMS- Integrated Traffic management system, PCB- Printed circuit board, PLC- Programmable logic controller

INTRODUCTION: The most convenient method of controlling traffic in a busy junction. But, we can see that these signals fail to control the traffic effectively when a particular lane has got more traffic than the other lanes. This situation makes that particular lane more

crowdie than the other lanes. If the traffic signals can allot different lanes to different vehicles based on their weight, like buses, trucks etc. in one lane, cars in one lane and like this the traffic congestion can be solved by diverging the traffic accordingly. In this method, intend



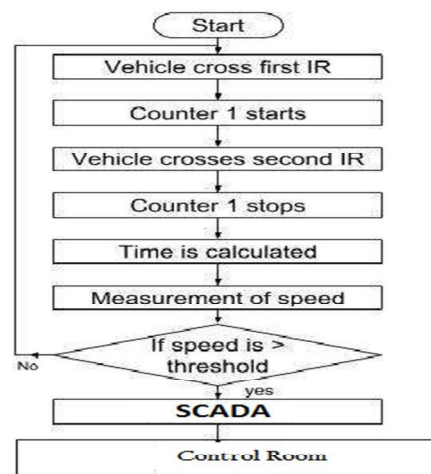
to measure the traffic density by counting the number of vehicles in each lane and their weight, then park in automated parking or diverge them accordingly. It is also difficult for a traffic police to monitor the whole scenario round the clock. So, this system can be implemented on highways and city traffic.

LITERATURE REVIEW: Mohit Dev Srivastava et...al; present the initial steps in the implementation of a smart traffic light control system based on Programmable Logic Controller (PLC) technology. In this method, intend to measure the traffic density by counting the number of vehicles in each lane and their weight, then park in automated parking or diverge them accordingly. It is also difficult for a traffic police to monitor the whole scenario round the clock. C Barz et...al; presents the traffic control system controlled through a PLC which takes the signals from different sensors on roads. The global system developed ensures the coordination of four intersections, setting a path that respects coordination type green light, the integration of additional sensors, the implementation of probes radar to inform traffic participants about recommended speed for accessing the green state located in the intersection that will follow to cross. Ashwini Y Dakole et...al; The new architecture and design theory of this system is integrated by lot of hardware modules such as ARM LPC 2148 microcontroller as a control unit to combine with global positioning system and CC2500 RF module by the hardware/software co-design, the new traffic control system can be design. The traffic congestion can be caused by large Red light delays in the normal traffic control system. The ARM7 based traffic control system proposes a multiple traffic

light control and monitoring system that reduce the possibilities of traffic jams, caused by traffic lights. The system is based on ATmega16 and ARM7.

PROPOSED DESIGN:

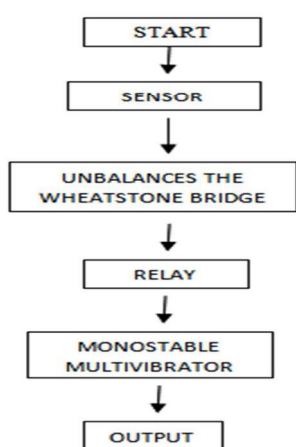
SPEED DETECTION: The system basically comprises two laser transmitter-LDR sensor pairs, which are installed on the highway 100 meters apart, with the transmitter and the LDR sensor of each pair on the opposite sides of the road as shown in Fig. The system displays the time taken by the vehicle in crossing this 100m distance from one pair to the other with a resolution of 0.01 second, from which the speed of the vehicle can be calculated



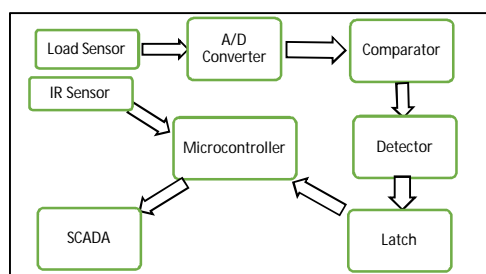
TRAFFIC SIGNAL CROSSING: The embedded system is a part of our life and will be even more prevalent in the future. Most of them perform simple control and support tasks on command in a preprogrammed manner, but that is not the end of the line. Increasingly they are designed to carry out autonomous tasks including "intelligence" (Smart Systems) they are also designed to be able to decide, based on complex inputs and



situation awareness that is, what to do under circumstances defined by an unreliable environment. Many security systems that start from security lock codes to finger print scanner, iris scanner for security locks are the result of development in the field of embedded systems. The flow chart for traffic control signal:

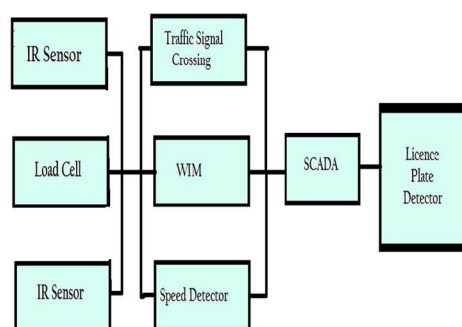


WEIGH IN MOTION: The process of dynamic weighing consists in recording and processing signals generated in sensors under the influence of the axle loads of a moving vehicle. Since the sensors are embedded in pavement perpendicularly to the direction of motion, each vehicle passing over the WIM site is weighed



SCADA VIEW OF PROPOSED

PARAMETERS: The three sensors IR sensor, strain gauge sensor (load cell) are complied to all the parameters. (WIM, Speed detector, TSC) in accordance with the circuit diagram after the process the SCADA detector shows real time recording and transmitted to control soon and further the recorder recognize the plate number through license plate detection.



CONCLUSION: In this project, embedded system for automatic traffic violation monitoring, the traffic frequency is measured as a function of number of vehicles which comes under the contact of sensing unit. We have implemented a microcontroller-based system that automatically performs the functions of monitoring traffic violation using PIC16F877. This system is easy to install, strong function head and easy to promote and implement. In future we planned to extend this project in such a way that the system can monitor more number of vehicles and to send message about the traffic violation to the respective people like check post and police station through GSM. The designed and implementation of this



technique is directly targeted for traffic management so that emergency vehicle on road get clear way to reach their destination in less time and without any human interruption. The main scope of these smart systems is to have the traffic lights mimic the human intelligence thus eliminating the need of having traffic officers control traffic on the roads. These intelligent systems provide a way for the lights to change from red to green based on current traffic conditions. The sensors are interfaced with Delta PLC Module. This interface is synchronized with the whole process of the traffic system. The method will help to reduce congestion on roads and would help in coping traffic at junctions and accidents.

FUTURESCOPE: The large territories and huge volumes of data SCADA can handle form a formidable combination. Today's SCADA systems can manage anything from a few thousands to one million of input/output channels. The technology is still evolving in terms of sophistication as well. SCADA systems as they are now can perform a large variety of tasks and some systems have artificial intelligence built into them. They are also more network-enabled, thus paving the way for voice-data-control data convergence. With proper planning and a custom-made installation, a SCADA system becomes a valuable asset.

REFERENCES:

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[1] Azura Che Soh/Lai Guan Rhung
"MATLAB Simulation of Fuzzy Traffic

Controller for Multilane Isolated Intersection" Feb. 2011.

[2] Barz C, Oprea C, Erdei Z, Pop-Vadean A and Petrovan F 2014 *The control of an industrial process with PLC*, International Conference on Applied and Theoretical Electricity (ICATE) Craiova, Romania, pp. 1-4 October 23-25.

[3] Xu Li, Wei Shu, Minglu Li, Hong-Yu Huang, Pei-En Luo, and Min-You Wu, "Performance Evaluation of Vehicle-Based Mobile Sensor Networks for Traffic Monitoring", 2009.

[4] Downs, A. (1962). "The law of peak hour expressway congestion". *Traffic Quarterly* pp.393-409.

[5] "PLC Based Intelligent Traffic Control System", Muhammad Arshad Khattak International Journal of Electrical & Computer Sciences.

[6]Rajeshwari Sundar, SanthoshsHebbar, and VaraprasadGolla "Implementing Intelligent Traffic Control System