

Traffic Control System For Ambulance Clearance and Stolen Vehicle Detection Using Arm 7 Architecture

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ABSTRACT:

This present day the road accidents in brand new urban areas are elevated to uncertain level. The loss of human lifestyles because of accident is to be refrained from. Site visitors congestion and tidal go with the flow are main information that purpose prolong to ambulance. To bar loss of human lifestyles as a result of accidents we introduce a scheme referred to as ITLS (wise traffic mild system). The principal theme at the back of this scheme is to provide a smooth go with the flow for the emergency automobiles like ambulance to arrive the hospitals in time and thus minimizing the lengthen induced with the aid of traffic congestion. The suggestion in the back of this scheme is to implement ITLS which would manipulate mechanically the traffic lights within the path of the ambulance. The ambulance is controlled via the manage unit which furnishes enough route to the

ambulance and in addition controls the site visitors mild in line with the ambulance region and for this reason achieving the health facility safely. The controller identifies the region of the accident spot through the sensor systems in the vehicle which determined the accident and as a consequence the controller walks through the ambulance to the spot. This scheme is totally computerized, consequently it finds the accident spot, controls the site visitors lights, serving to to reach the clinic in time.

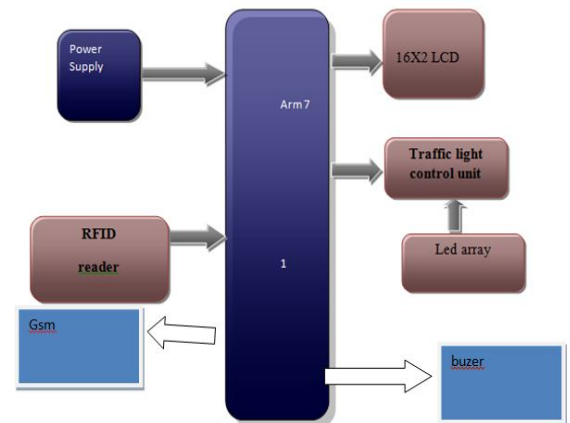
Keywords:-RFID, GSM, ARM 7, ambulance vehicle, stolen vehicle, congestion control, traffic junction

INTRODUCTION:

At the present time wireless Sensor Networks (WSN) has been utilized in various domains like climate monitoring, military, house automation, well being care

monitoring, security and defense etc. Or in a nut shell you could say wi-fi sensor network can be utilized in many of the domains [1], [7]. Traffic signal approach or visitors monitoring is a significant domain the place WSN may also be applied to collect understanding concerning the incoming waft of site visitors, traffic load on a unique road, site visitors load at precise interval of time (height hours) and in automobile prioritization. WSN set up alongside a road will also be utilized to manage the site visitors load on roads and at visitors intersections [5], [9]. The sensor nodes that are to be deployed along the road are small in size and have low energy consumption[2], [3]. These sensors run on each battery vigor as well as sunlight vigour. They have the capacity to attract sun vigourso that they can use sunlight for functioning in vivid and sunny condition and the battery power for performing at night or in cloudy or foggy condition. Sensors used within the wi-fi Sensor community for visitors signal techniques are generally of two forms: i) Intrusive style and ii) Non-Intrusive variety . I) Intrusive types of sensor are saved underneath the street and feel the visitors ready on the signal. This style of sensor has

the equal working principle as that of a metal detector. Ii) Non-Intrusive forms of



sensor is geared up on the street. The installation of this type of sensor is effortless as no slicing of street is required to be done. Non-intrusive sensor entails acoustic sensors or video image processors to discover the presence of automobiles waiting at the traffic intersection. Despite the fact that Intrusive sensors are very mighty nonetheless Nonintrusive sensors are desired over Intrusive sensors as they're price-robust, effortless to put in, resistant to natural corrosion and degradation.

IMPLEMENTATION:

Power Supply

Power supply is a reference to a source of electrical power. A device or

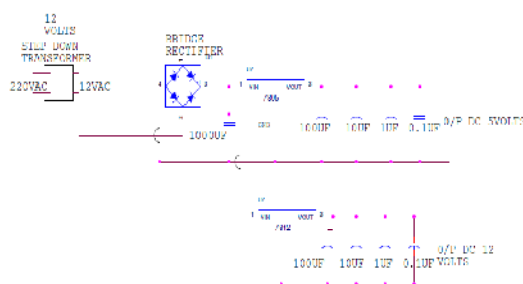
system that supplies electrical or other types of energy to an output load or group of loads is called a power supply unit or PSU. The term is most commonly applied to electrical energy supplies, less often to mechanical ones, and rarely to others

This power supply section is required to convert AC signal to DC signal and also to reduce the amplitude of the signal. The available voltage signal from the mains is 230V/50Hz which is an AC voltage, but the required is DC voltage (no frequency) with the amplitude of +5V and +12V for various applications. In this section we have Transformer, Bridge rectifier, are connected serially and voltage regulators for +5V and +12V (7805 and 7812) via a capacitor (1000 μ F) in parallel are connected parallel as shown in the circuit diagram below. Each voltage regulator output is again is connected to the capacitors of values (100 μ F, 10 μ F, 1 μ F, 0.1 μ F) are connected parallel through which the corresponding

output(+5V or +12V) are taken into consideration.

ARM PROCESSOR:

The ARM (Acorn RISC machine) structure is developed at Acorn computer limited of Cambridge, England between 1983-1985. ARM constrained situated in 1990. ARM became because the evolved RISC desktop is a 32-bit RISC processor architecture that's generally utilized in embedded designs. ARM cores licensed to semiconductor companions who fabricate and promote to their consumers. ARM does not fabricate silicon itself due to the fact of their vigour saving features, ARM CPUs are dominant within the mobile electronics market, the place low vigor consumption is a valuable design purpose. As of 2007, about ninety eight percentage of the greater than a thousand million cellular phones sold each 12 months use as a minimum one ARM CPU. At present, the ARM household bills for approximately seventy five% of all embedded 32-bit RISC CPUs, making it the most generally used 32-bit structure. ARM CPUs are found in most corners of consumer electronics, from portable contraptions (PDAs, cell phones, iPods and



other digital media and track gamers, handheld gaming items, and calculators) to pc peripherals (difficult drives, computer routers). ARM does now not manufacture the CPU itself, but licenses it to different manufacturers to combine them into their own system

WORKING:

Underneath the proposed work, every intersection comprises eight RFID readers. The road is divided into two lanes. Every lane has its RFID reader to monitor the cars passing through it. Each and every intersection factor has its own database to store the know-how involving the vehicles that handed from it with timestamp and site visitors mild. Each car has a RFID enabled device that shops a automobile identification quantity (VIN). Each auto has its targeted VIN quantity that provides the information regarding the priority of the vehicle and style of the automobile. With the support of VIN we will uniquely determine the car & its proprietor. Car Identification number: within the proposed work RFID, tag will retailer a vehicle Identification quantity. This quantity is divided into 3 elements: First part characterize the precedence of the

cars. Next phase represents the style of car and subsequent digits represent the vehicle quantity.

Priority: within the proposed work, specific varieties of cars have the special priorities. The complete cars are divided into four classes: First process class includes Ambulance, hearth Brigade automobiles and V.I.P automobiles. These autos have the perfect precedence. The 2d

class involves the buses and tuition & tuition buses. These buses ought to attain theirvacation spot on time so these cars additionally need a rapid carrier. 0.33 class entails the auto, motor cycles and scooters and fourth class comprise the Heavy cars. Day time priority of 3rd category is excessive as examine to 4th class but for the duration of night hours the priority of the heavy autos high. Every intersection on the avenue has 4 site visitors lights as shown in the determine 1. Each and every lane has its possess RFID reader that stores the vehicles passing by means of it with time stamp. On the foundation of the time stamp, we discover the violators. For this rationale we store the period of the fairwaylight. So the cars coming on the corresponding light are

allowed to maneuver in any path. For the duration of this time reader comparable to crimson light outlets the autos passing by way of the lane. Smart visitors mild Controller: each city has more than one intersections Two lights are called linked Lights which can be positioned on opposite aspects of the avenue that become a member of two intersections. The RFID reader shops the files of all of the vehicles that passed by way of the avenue. The traffic mild controller follows the same circular robin sequence of the lights. But if an Emergency auto is detected at any visitors light then controller leave the circular robin schedule and generate the green signal for the ambulance. The opposite mission of the controller is to calculate the time of inexperienced signal that is centered on the number of automobile. To solve the drawback of starvation a point in time is outlined. If this restrict exceeds then that mild gets its turn.

Pseudo code for traffic light control: The following given pseudo code helps to generate an efficient algorithm to control the sequence of the traffic light according the parameters discussed above.

While (true)

1. Store all lights in Queue
2. Sense the vehicles on different lights continuously
3. If a high priority vehicle is detected then
 - a. Send an emergency signal to center Traffic light controller
 - b. Find the road corresponding to the reader that detect a high priority vehicle
 - c. Set the corresponding traffic light Green
4. Else
5. For $i=1$ to 4
 - a. At decision point dp Pick the traffic light Queue[i]
 - a. At traffic i Count the number of vehicles & check type of vehicle
 - b. If Emergency vehicle found then
 1. Go to step 3
 - c. Else follow steps d to f
 - d. Find the priority of the different vehicle at traffic light i

e. Calculate the total sum according to Number of vehicle

f. On the basis of sum calculate the time for green signal

g. If any light doesn't get its term within the threshold time then 1. Give the turn to that light

6. End Loop

7. End

STOLEN VEHICLE:

Within this module, for trying out reason, we compare the precise RFID tag learn by way of the RFID readers towards the stolen RFIDs saved in the computing device. In case your fit is located, then your traffic signal is right away switched to crimson for any time interval of thirty seconds. Also an SMS is dispensed indicating the RFID number by means of using GSM module to Control Room & The Liquid crystal show will indicate that stolen vehicle exists.

CONCLUSION:

Although prior process represents effective systems to control the site visitors gentle sequence however these are not to furnish

the QoS to exact auto. The proposed work considers not best the precedence of the vehicles but additionally the density of the autos on the road and controls the site visitors light sequence efficaciously and extra competently and the accuracy of the RFID is greater than digital camera's so it additionally improves the efficiency of traffic mild Violation Detection procedure

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