SCAN ON THE URBAN TRAFFIC MANAGEMENT SYSTEM BY USING WIRELESS SENSOR NETWORK

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ABSTRACT:

Traffic coordination in intersections is an awfully studied and difficult matter.Recently, management of street site visitors is rapid becoming a matter of grave situation. Site visitors congestion has massive hazardous influences on the economy, environment and life of the group. The visitors congestion has broadly improved the number of accidents on roads and additionally elevated CO2 emissions from vehicles, due to extended idle time, so it is the necessity to construct a safer, atmosphere friendly, vigor efficient and far more dependable system for traffic. ZigBee is an IEEE 802.15.Four standard for data communications dealing trade and consumer gadgets. It's designed for lowpower consumption enabling batteries to last ceaselessly. The ZigBee standard provides community, protection, and software help services running on top of the IEEE 802.15.Four Medium access control (MAC) and bodily Layer wireless common. It employs a gaggle of applied sciences to allow scalable, self-organizing, self-medication networks that can control various data site visitors patterns. ZigBee is a low cost, low-vigour, wi-fi mesh networking typical. The low cost makes it possible for the technologyto be widely deployed in wireless manipulate and monitoring functions, the low vigor-usage enables longerlife with smaller batteries, and the mesh networking which promises high reliability and larger variety. ZigBee has-been developed to fulfill the developing demand for competent wireless networking between countless low energy contraptions. In industry ZigBee is being used for next generation computerized manufacturing, with small transmitters in each device on the flooring, permitting for conversation between contraptions to a central pc. This new stage of conversation enables finely-tuned far off monitoring and manipulation.

INTRODUCTION:

The monitoring and control of city traffic is becoming a major problem in many

countries. With the ever increasing number of vehicles on the road, the Traffic Monitoring Authority or the Transport Ministry as the authority is known here in Malaysia has to find new ways or measures of overcoming such a problem. The measures taken are development of new roads and flyovers in the middle of the city; building of several ring such as the inner ring road, middle ring road and outer ring road; introduction of city trains such as the light rapid transit (LRT), and monorails; restricting of large vehicles in the city during peak hours; and also development of sophisticated traffic monitoring and control systems. But nowadays the existing traffic management becomes inefficient. Existing intelligent transportation systems (ITS) solutions detect vehicles in predefined positions. It is possible to obtain complete and integrated information (video-images and traffic volumes information). WSNs allow dynamic changes to network topology based on real needs and reports coming from sensors located along the road. When needed, the number of cameras which control a specific area may increase to produce more detailed information. Image processing is better technique to control traffic density in real time system .It shows that it can decrease traffic congestion and

avoids time being wasted by green light on an empty roads .It is also more reliable in estimating vehicles presence because it uses actual traffic images etc. Count of vehicles which results in density estimation of the traffic at regular interval of time This is achieved through morphological operations dilation and opening .etc.

IMPLEMENTATION:

ARM :

The ARM7 family includes the ARM7TDMI, ARM7TDMI-S, ARM720T, and ARM7EJ-S processors. The ARM7TDMI core is the industry's most widely used 32-bit embedded RISC microprocessor solution. Optimized for cost and power-sensitive applications, the ARM7TDMI solution provides the low power consumption, small size, and high performance needed in portable, embedded applications.

The ARM7EJ-S processor is a synthesizable core that provides all the benefits of the ARM7TDMI low power consumption, small size, and the thumb instruction set while also incorporating ARM's latest DSP extensions and enabling acceleration of java-based applications. Compatible with the ARM9™, ARM9E™, and ARM10™ families, and Strong-Arm®

architecture software written for the ARM7TDMI processor is 100% binary-compatible with other members of the ARM7 family and forwards-compatible with the ARM9, ARM9E, and ARM10 families, as well as products in Intel's Strong ARM and x scale architectures. This gives designers a choice of software-compatible processors with strong price-performance points. Support for the ARM architecture today includes:Operating systems such as Windows CE, Linux, palm and SYMBIAN OS.More than 40 real-time operating systems, including qnx, Wind River's vxworks and mentor graphics' vrtx.Co simulation tools from leading eda vendors A variety of software development tools.

LCD: A liquid crystal display (LCD) is a

thin, flat display device made up of any number of color or monochrome pixels

arrayed in front of a light source or reflector. Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other. A program must interact with the outside world using input and output devices that communicate directly with a human being. One of the most common devices attached to an controller is an LCD display. Some of the most common LCDs connected to the contollers are 16X1, 16x2 and 20x2 displays. This means 16 characters per line by 1 line 16 characters per line by 2 lines and 20 characters per line.

CONCLUSION & FUTURE SCOPE

In this work Automatic Traffic Light Controller, the trafficcount is measured by the sensor for about 40 m in each lane and accordingly the traffic is managed in the respective junction and also in the adjacent junctions as they are notified about the congestion by the server through GSM technology and vehicle to vehicle adhoc –

network (VANET). Even all the vehicles are informed about the congestion so that they can reroute towards less congested signal junction. Vehicles can easily exchange information through VANET network and GSM wireless network and easily get the latest information about the congestion through server. In case of failure of Server or any traffic signal or any junction, ZigBee,a wireless device, communicate between traffic signal and handle the traffic overflow .The various performance evaluation criteria are average waiting time, green light frequency switching at a junction, fuel consumption by vehicles, traffic control efficient emergency mode operation, less pollution emission, less power consumption and satisfactory operation of SMS using GSM Mobile. It is observed that the proposed Intelligent Traffic Light Controller is more efficient than the conventional fixed Mode or Intelligent Traffic Light Controller in respect of less waiting time at signal junction, more distance traveled by average vehicles, less CO_2 and other polluted contains emission due to managed traffic handling, efficient operation during emergency mode and failure condition of traffic server or any traffic signal. Moreover, the designed system has simple architecture,

fast response time, user friendliness, environmental friendliness and energy efficient and scope for further expansion.

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