

Smart City Management

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Abstract :

Waste management is one of the main issues facing the world regardless of whether it affects developed countries or developing countries. The key issue in waste management is that the waste bin will be overflowed in public places well in advance before the next cleaning processes commence. It causes bad smell and ugliness in the surrounding area, and spreads disease in turn. Mounting these smart dustbins keeps the area clean and hygienic. The project's key theme is to build a smart garbage network to ensure effective garbage disposal. This paper provides the municipal corporation with an alert system by checking the level of the garbage and facilitating its method of disposal. This system has an ultrasonic sensor connected to the controller to check the amount of garbage inside the dustbin and to send the warning to the municipal web server when the garbage is filled or the threshold level reaches. After the dustbin has been swept the driver confirms the responsibility to clear the garbage.

Keywords —IR Sensor, UV Sensors , ARM Controller , RF encoder decoder , LDR.

I. INTRODUCTION

This is an Age of Smartness. Everyone is trying to be a global player by achieving smartness. Government of India is trying hard for all round and inclusive growth under leadership of Hon. Narendra Modi. So many schemes are launched like Make in India, Start up India, Smart City and so on. But till today 65% of our population is staying in City's. It's a must make our city smart to implement all other schemes effectively. Smart City is a relatively new concept within the realm of EU policy making. The emerging Smart City concept refers to the rural areas and communities that are building on their

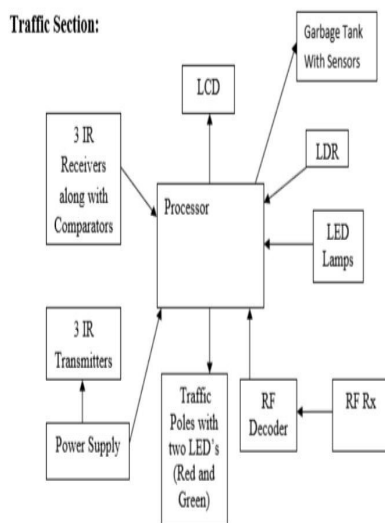
existing strengths And assets and development opportunities. With digital, telecommunications technologies, innovations and a better use of knowledge, traditional and new smart city networks and services are enhanced for residents and businesses. Digital technologies and innovations can foster quality of life, higher living standards, public services for citizens, better use of resources, less impact on the environment, and new opportunities in terms of products and improved processes for rural value chains. The Smart City concept doesn't offer a one-size-fits-all solution It is territorially sensitive, assisted by new or existing territorial approaches, focused on and driven by the

needs and potential of the respective territories. The development of Smart Cities has been of immense interest in recent times. But in India sense, as we understand, city's are the heart of the country. Therefore, in order for the development to percolate to the grass root level , the focus must be on the progress of the city Today , people have been so busy and can't find time to turn the lights when it's not necessary. The present practice is that after adequate outside light, the lights are switched on at night before sunset, and they are switched off the next morning. But when there is total darkness the real timing is for certain lights to turn on. With this the power will be wasted up to some degree. This paper provides the best possible solution for energy waste. It also removes manual operation of the lighting system entirely. The worldwide demand for energy is increasing at the highest possible level due to population growth and economic development, and the availability of energy sources remains severely limited, And thus remain faced with severe energy shortages Streetlights are an integral part of any developing locality. They are also present on all major roads, and also in the suburbs. From sunset to sunrise every day, except when nobody is around, the streetlights are worked at full force. Every day millions of dollars are spent on these street lights to provide the required electrical energy on a global scale. The cost of fixing modern incandescent light bulbs and replacing them is high. They use a lot of energy to work, and also very high emissions of carbon. All of this leads to increased demand for electricity and therefore increased carbon emissions from the powerhouses. Together with excessive light pollution, this action also harms our world. Dim the lights during off peak hours would be a simple and effective solution to this. Whenever presence is detected the lights around it glow in normal (bright) mode. That would save considerable energy and thus reduce the operating costs of streetlights. Using IOT (Internet of Things), we can check the status of street light in real time from anywhere on the internet, and address problems if they arise during processing. In addition, a table top prototype

was developed to demonstrate the workings of the design. The components used in real-life implementation are substituted appropriately to recreate the ambience. As environmental concerns increase, lighting control systems will play an important role in reducing light energy usage without impeding comfort targets. As reported, energy is the single most important parameter to be considered when evaluating the environmental impact of the technical systems Energy-related emissions account for almost 80 percent of air pollution, and they are central to the most significant environmental effects and threats, including climate change, acid deposition, smog and particulates. Lighting is always the highest electrical charge in workplaces, but the energy usage of lighting is small relative to the staff costs. And the ability to resource save is still neglected. According to the report , global grid-based electricity consumption for lighting amounted to approximately 2650 TW in 2005, which is equivalent to 19% of total global electricity consumption European office buildings devote approximately 50% of their electricity to lighting, while lighting accounts for approximately 20-30% in hospitals, 15 per cent in factories, 10-15 per cent in schools and 10 per cent in residential buildings. Smart lighting control and energy management are the perfect solution for energy savings, especially in public lighting applications. It performs remote on / off dimming and light dimming, which can save energy by 40%, minimize the cost of light repair by 50% and increase the life of the lamp by 25%. The implementation of the device in streetlight control for each lamp would minimize electricity and maintenance costs for street light and increase the quality of street light, In this project "STREET LIGHT WITH REDUCED POWER CONSUMPTION" we are reducing the power consumption by using IR sensors & also we are monitoring the street light working & IR sensor working using LDR. In the older systems street lights will be continuously switched ON during the night time which consumes more power & it is waste also.

II. IMPLYMENTATION OF PROPOSED SYSTEM

Street Light Method: The current system uses power transmission over a single phase thread to streetlight. The proposed system contains five more components for regulating electricity transmission. An Infra-Red proximity sensor at the base of street light senses the presence of street light in a small area around. The data from the sensor is sent to the Arduino, which forms the brain circuit. Then, the Arduino commands and monitors the brightness of the street light to switch between dim and bright modes depending on the need. The sensors and Arduino are supplied with a battery eliminator, also powered by a single phase line.



The architecture essentially consists of three operating modes:- OFF mode: shutting off the entire device and charging the batteries when the surrounding area has ample natural light, i.e. daytime. Active mode: The system automatically turns when the natural light falls below a certain amount and the motion sensors are enabled.ON mode: The sensors turn on when pedestrians are

present which in turn switches on the LED lights. After a period of time, those lights turn off .

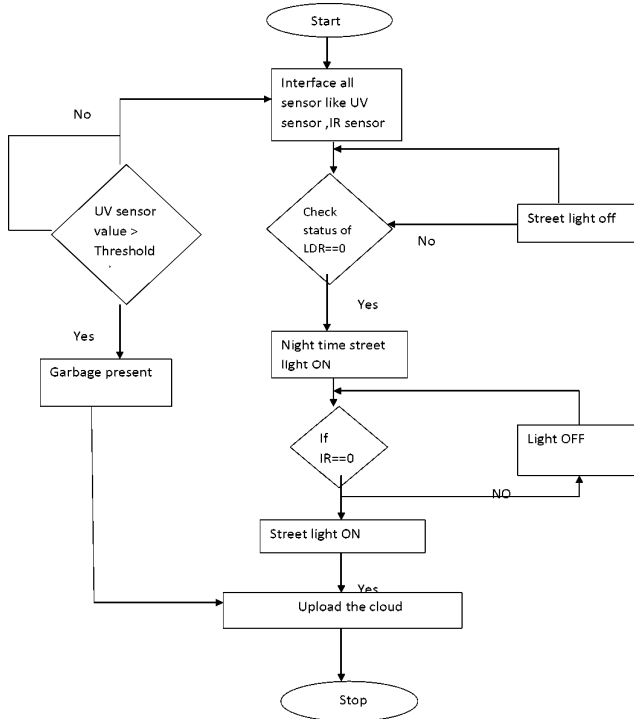
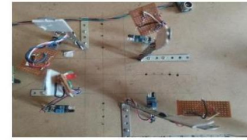
Traffic: IR based system can solve the problem of traffic light control. With this system, by installing IR Sensor at road intersections, We should consider the priority of the different vehicle types and also the road traffic density. IR frequency detection is a method using the infrared waves to uniquely classify the target. IR Sensors is a tool widely used in various fields of application such as medical research, industry, security, electronic toll collection, access control, etc. The IR transmitter has two main components, IR receiver. Priority concept is implemented using RF Tx and Rx unit. RF Rx will be connected to traffic unit with decoder. RF Tx with encoder unit will be connected in VIP or Ambulance vehicle. Once the vehicle approaches the traffic signal, the respective signal time is increased, so that the vehicle gets highest priority for moving out of the signal. VIP and Ambulance vehicle will be having a unique code to transmit. At demo time, the unique code of VIP or ambulance vehicle can be changed by using DIP switch.

Vehicle section: The default green signal will be switched on for 5 seconds for particular road. Whenever the first IR receiver on a particular road is blocked, it displays a green signal for 10 seconds. If the second IR receiver is blocked on a given lane, the green signal will be shown for 15 seconds. Whenever an ambulance or VIP vehicle passes through a particular vehicle (here route 2 for demo), a green signal will be given will be displayed for 20 seconds.

III. RESULT

Urbanization is in its rapid growth phase worldwide, with more people choosing to live in city lights with more resources for development and prosperity. Cities are expanding like never before to accommodate this growth and the smart cities concept has come into effect in this process. As a mall-efficient road-management step, Our job is, we can believe that this paper would give people the courage to do a good job on similar subjects. We successfully manufactured and tested our smart

city module model so we believe with government encouragement that we can transform this model into a product with success.

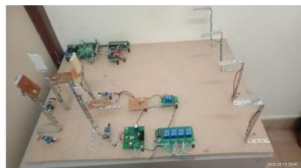


A. Advantages

- Eviting time wasting due to traffic. Fully automatic.
- It makes the traffic light easy to access.
- Faible electricity consumption
- Low cost of circuit construction, track maintenance is fine
- Easy convenience to handle.

IV. CONCLUSIONS

Using the proposed system, the model can be made completely automated and hence the objective of is to keep rural/urban area clean and avoid from environmental pollution by garbage monitoring system, and through automatic street light control the manpower and energy can be saved. Thus, it can be concluded with respect to the result obtained that the proposed prototype can be a better and play a vital role in projects like “Swachh Bharat” and in making Indian smart and clean. The proposed system can be further modified on different levels of designing and implementation. This project has enormous potential, and because of its inexpensive and cost-effective design, it can be used in many other ways. This can be used by attaching 240V relays for effective use as a home automation controller. This can be used in a float switch in a tank, so that, when the tank is full, the device automatically shuts down the pump, it can be used in combination with a solar panel, making the entire system environmentally friendly.



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