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Smart City Control

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***Abstract*—** smart city through distributive control system is the main purpose of this paper. In this project the main aim of the project to enhance the conventional method and improve the standardization of citizens with using proper resources and automation tools. Smart city concept makes a better use of public resources, increasing the quality of services offered to citizen, while reducing the operational costs of the public administration system with the help of automation. In smart city control we are centralizing, some different parameters for controlling and monitoring from the control room. The paper represents smart city control system in which we have controllers for different purposes like for wastage, parking, emergency help control, DCS has been used and for light intensity, earthquake detection embedded system has been used. This system monitors and control different sensors, which provide input to controller, the output of DCS taken acknowledging action against the inputs. The different sector that has been developing smart city technology includes govt. services, Transportation, traffic management, wastage management. The city are monitoring and observing by control room. Observers always monitor and check the present situation with the help of SCADA.

***Keywords*—** Smart city, Distributed Control System (DCS), Supervisory Control and Data Acquisition (SCADA).

I. INTRODUCTION

All round world urbanisation is growing trends as more and more peoples attracted towards cities so smart city and there integration is need to be developed. In 1950's, only 30% world's population lived in cities, by 2014, the urbanization level has reached to 54%. in smart city control concepts automation has led in raising of quality standard by improving development of city and effective uses resource. In smart city control concepts automation tools has led in raising of quality standard by improving development of city and effective uses of automation tools. In this project we are monitoring and observing several different sectors of city. The main purposes of project are:-

- Wastage management.
- Traffic management.
- Street light management.
- Emergency help control.
- Parking management.

In wastage management the garbage containers transmit the signal to indicate that they are over at its capacity and should be emptified via linked to communication to control room, then only garbage trucks only those containers that actually needs to emptified. A wastage management system is based on the load cell and level sensors system is installed inside and outside of container to detect the level and weight. Maintenance, service and diagnostics are also possible via sensor data is monitored online in control room, the Sensors required very low power supply, it an energy saving and durable solution. In emergency help panel there is providing switches to given directly attention at location, the switches are connected to police station, hospital for ambulance help and control room for to actually check the situation at the particular location with the help of CCTV surveillances.

The traditional street lights work on full power when turned on and the amount of light is not usually adjusted. But using light intensity control circuit. We are adjusting the light intensity of the street light by using according to the sun light condition.

Now days, parking of vehicles is very complex problem is to cities. So, for according to that problem. We are using proximity sensors that vacant parking place available, for the park of vehicles. Modern embedded system and logic controllers we are developing some sector to do specific tasks by consuming less resources and increasing reliability and less performances of system to enhance standard of the cities. In order to automate the city and increasing life style and minimize use of public resources. While SCADA is used to monitor system, DCS internal storage of instruction for the internal storage implementing such logics, sequencing, timing, counting and arithmetic through digital or analog input module for various type of process.

II. SMART CITY CONTROL DESIGN

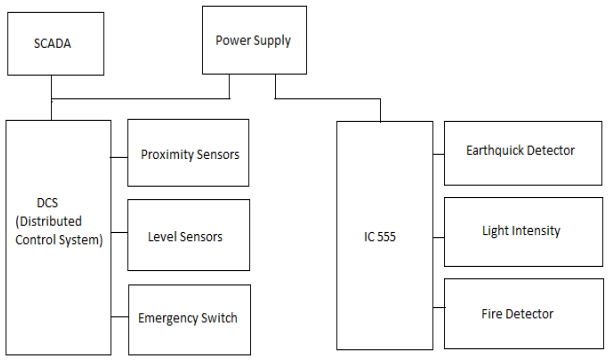

Fig. 1. Block Diagram of control system.

Block diagram of the proposed system is as shown in figure 1. It consists of:-

- DCS

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- Power supply
- Proximity sensors
- Emergency Switch
- Level sensor
- SCADA

The proposed system is an integration of embedded system and DCS. DCS is main controller which will accepts inputs and takes action accordingly

- *DCS (Distributed Control System):-*

It is the main element of the system. These days city parameters are decentralized so as to make all these systems centralized this system has been used.

- *Proximity sensors:-*

It is used to locate the object without any physical contact and give signal to the DCS to take necessary action. Proximity sensors are used in the parking management system.

- *Emergency control switch:-*

Emergency control panel switches located at some locations of the city. Push type switches used for the performing operations. The switches connected to controller.

- *Level sensors:-*

Level sensors are used for the wastage management system. This detects the level of material in the container and gives the input signal to the controller.

- *SCADA:-*

it is a purely software package that is use for controlling and monitoring purpose on top of hardware to which it is interfaced, in general via DCS controller.

- *Power supply:*

It supplies the required power to the DCS and different sensors.

III. AUTOMATION

Delegation of Human Control to technical Equipment aimed towards achieving the better quality of living standard. Automated process boosts efficiency. *DCS* In this system, instead of achieving desired control and automation through physical wiring of control devices, it is achieving through program say software. The automation technique involving the automatic control of all the processes which includes the monitoring and inspection needs provides for a very efficient system. The automation process helps reduction in the human resources, increased efficiency, and most importantly very cost effective.

IV. ADVANTAGES

Sectors that have been developing smart city technology include government services, transport and traffic management, energy, waste, parking management. A smart city is built in order to response challenges more quickly than a normal city. The advantages of the proposed system are:

- Reduction in human efforts due to automation.
- We can monitor and observe whole city from single control room.
- We can give quick response to emergency system.
- Smart city is concept which is providing good living standard for the citizens.

V. RESULT ANALYSIS

We have designed system to make an understanding of relevant cases related to smart city and to find them solution and our system is working successfully as per our design. As we have emerging cities in world it is necessary to make them smart and to make them relevant for people welfare. Our project is effective method to monitor and control different city parameters like wastage, parking, street light management, emergency help control and also to give indications for earthquake and fire detection systems. Parameters are sense by respective sensor, if sensor gives the change in their states according to change in parameter, controller gives control action and all these displays on SCADA screen. The system we have design in the project fulfil the basic needs for smart city.

VI. CONCLUSION

The most important aspects of any smart city is improve the lifestyle of citizens. The methods has to be used relies varied objective like enhance life quality. To maintain this system and to make it more reliable. It is important to make on good control an it. So as to take this control we have designed our system. In approach the smart city, the provide core infrastructure and give decent quality of life to its citizens, a clean and sustainable environment and application of smart solution. The Paper has furnished itself to study the integral parts of the entire process involved, their implementation and the problems that may show up have also been given their due importance.

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