WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

ENERGY EFFICIENT SMART CITY

Prof. Salunkhe Rutuja S.[1], Prof. Korake Ganesh A.[2], Patil Rutuja Y.[3], Lendave P. S.[4], Mali G.J.[5]

[1] Dept.:- Electrical Engineering Karmyogi Institute of Technology Shelve, Pandharpur, Solapur Maharashtra, India
E-mail:-salunkherutuja177@gmail.com
[2] Dept.:- Electrical Engineering Karmayogi Institute of Technology Shelve, Pandharpur, Solapur Maharashtra, India
E-mail:- ganesh.korake55@gmail.com
[3] Dept.: Electrical Engineering Karmayogi Institute of Technology Shelve, Pandharpur, Solapur Maharashtra, India
E-mail:-@gmail.com
[4] Dept.:- Electrical Engineering Karmayogi Institute of Technology Shelve, Pandharpur, Solapur Maharashtra, India
E-mail:-priti.lendave0306@gmail.com
[5] Dept.:- Electrical Engineering Karmayogi Institute of Technology Shelve, Pandharpur, Solapur Maharashtra, India
E-mail:-maligitanjali402@gmail.com

ABSTRACT:

The smart city is a place where traditional network and service are made more efficient with the use of digital solution for the benefit of its in habitant and business. A smart city goes beyond the use of digital technologies for better resources use and less emissions. There is no universally accepted definition of a smart city, the conceptualization varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the residents.

Some definitional boundaries are required to guide cities in the mission. In the imagination of any city dweller in India, the picture of a smart city contains a wish list of infrastructure and needs of the citizens, urban planners ideally aim at developing the entire urban eco- system, which is represented by the four pillars of comprehensive development- institutional, physical, social and economic infrastructure. In smart cities, efficient transportation such as electrical trams and trains can relieve urban congestion and reduce carbon emission. Furthermore, clean and efficient public transportation encourages more usage of public transport, further relieving congestion and air pollution.

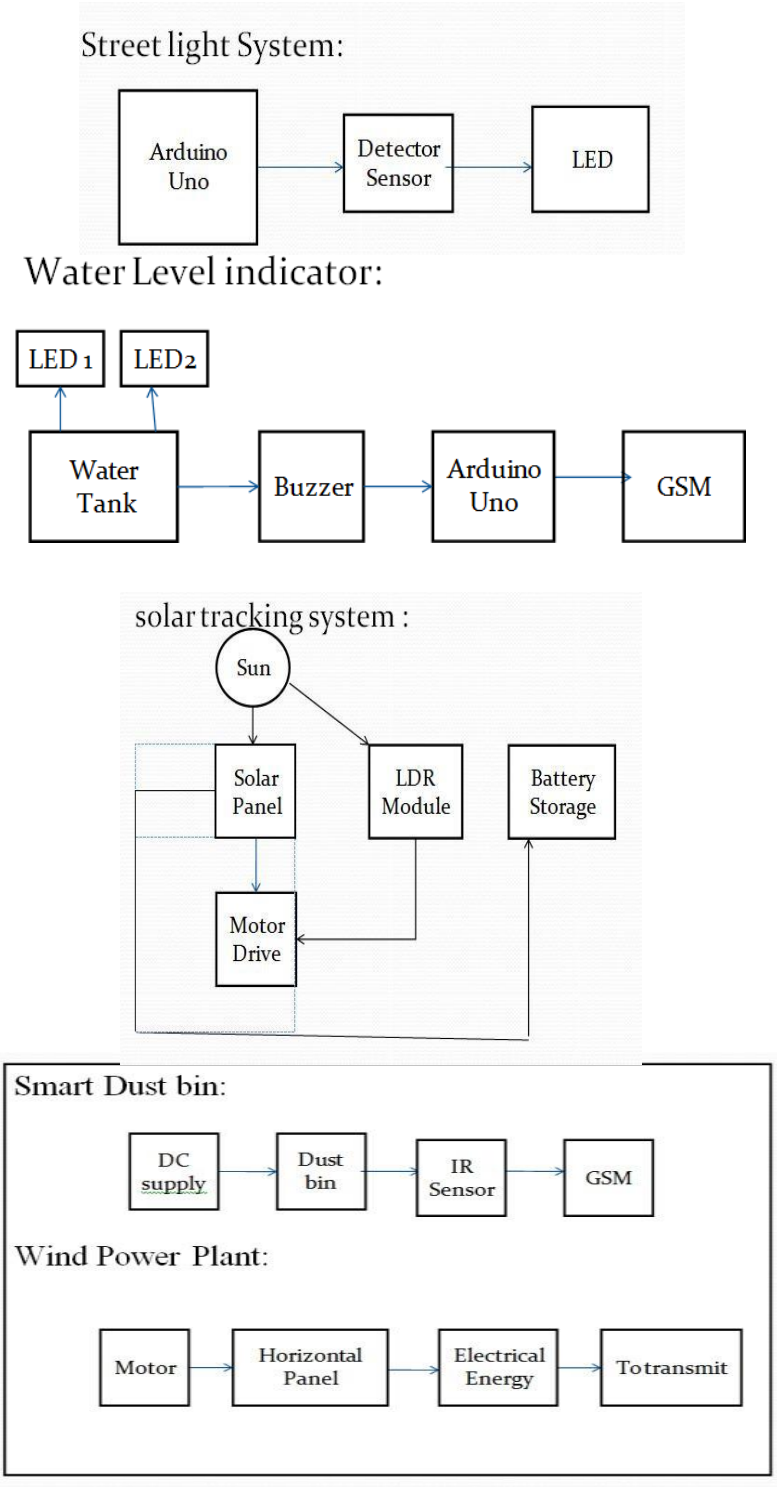
I . INTRODUCTION

Energy efficient smart cities, apply technology to lower energy use and enhance people's quality of life. A smart city is one that technology and creative ideas to enhance the quality of life of its people and lower its environmental effect. Increasing the energy efficiency of buildings, infrastructure, and urban systems is absolutely vital if we are to build really smart and sustainable cities. Countries have hot only been investigating renewable energy sources but also creating technologies, inventing processes and equipment that use energy efficiently and do not compromise performance. The unite nation as also set under sustainable develop goals (SDG) access to energy and efficiency. Urging governments to harmonize their policies and programs for sustainable sustainability and inclusiveness of processes and systems of a prototypical metropolis. A smart cities is one that offers cores infrastructure and quality of life to its people with a clean and sustainable environment. Driven by smart devices, machine and techniques, a smart city is also one that prioritizes energy conservation efficiency processes.

II. OBJECTIVE

A smart city also includes energy conservation efficiency processes driven by smart devices, machine and methods.
Reflecting a futuristic vision for urban expansion, smart cities aim to improve the quality of life for their residents. A smart city is not only a technical term; it is also a push toward the application of data and technology to attain genuine and important objectives. Smart cities want to improve the quality of life, boost service efficiency, promote citizen safety and security, and attain environmental and economic sustainability in the long run. This article will examine more closely the goals of smart cities and how they might shape sustainable and advanced urban future

III.BLOCK DIAGRAM AND DISCRIPTION



Solar tracking system:-

A solar tracking system aims to maximize the amount of sunlight it absorbs by keeping a solar panel perpendicular to the sun's rays; this converts more energy into power.

Smart dustbin:-

A smart dustbin system enhances waste management by monitoring the contents of a bin using sensor and technology. Smart bins have sensors that can monitor the bin's fill level. Often sent wirelessly over Wi-Fi or Bluetooth, this data helps waste management companies to optimize collection routes and minimize needless pickup.

Smart street light :-

The main objective of this project is to develop an embedded an system which switches or turn ON the light by detecting the vehicles on the road for energy saving of street light.

Buzzer:-

Fig. Buzzer

A beeper buzzer might be a mechanical type, piezoelectric, or electromechanical audio sign ling device. Its primary purpose is to turn the audio signal into sound. Usually, it runs on DC voltage and in timers, alarm devices, printers, alarms, computers, etc. Depending on the various designs, it may produce different sounds including alarm, music, bell and siren. It is defined by two pins called positive negative. .

Motor drive:-

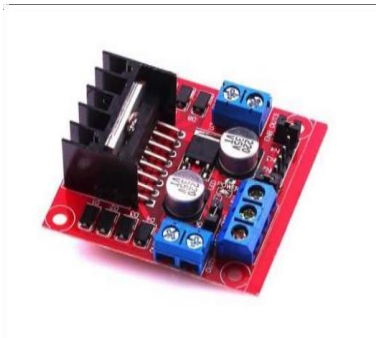


Fig. Motor drive

A motor IC is an integrated circuit chip that runs motor in embedded circuit and autonomous robots For basic robots and RC cars, motor drive ICs most usually are L293D and ULN2003. A motor drive is definitely so thing that makes the motor run according to the specified input or command.

IR Sensor:-

Fig. IR Sensor

An electronic device called an IR sensor finds certain objects in its environment by means of light emission.

An IR sensor can identify motion as well as measure an object's heat. Usually, in the infrared spectrum, all the objects emit some kind of thermal radiation. Though infrared sensors can pick up these radiations, our eyes cannot.

LDR Module:-

One kind of variable resistance is LDR or Light Dependent Resistance. Others call it a photo resistor as well. Working on the concept of "photo conductivity," the Light Dependant Resistor (LDR) The LDR resistance changes with the light intensity striking the LDR. The LDR resistance will drop and the element conductivity will rise when the light intensity on the LDR surface increases.

Arduino:-

Fig. Arduino

Arduino is a single-board microcontroller that can read input from sensor, buttons, and other sources, and output like activating motor or turning on light.

GSM:-

Fig. GSM

A GSM (Global System for Mobile Communication) with a mobile network using a SIM card. GSM module establish and maintain a communication link between a device and a GSM network. They also handle data encryption and decryption.

Advantages

1. Reduce energy consumption
2. Improve quality of life
3. Sustainability
4. Economic growth and innovation
5. Less crime
6. Improve public safety
7. More responsive city services
8. Save Electrical energy

Application

1. Street light
2. Energy storage system
3. Waste management
4. Solar heating
5. Smart grid
6. Reduce the light pollution
7. Generation of solar power

Feature and specification:-

Feature	Specification
GSM	-
Buzzer	6V
Motor Drive	L298N
LDR Module	-
Arduino	Atmega328p

Conclusion

In the energy smart city leverages advanced technology like smart grids, data analytics, and IOT sensor to optimize energy consumption across building, infrastructure, and transportation system, significantly reducing carbon emission while enhancing citizen quality of life by promoting sustainable energy sources like by promoting sustainable energy source like solar and wind power, ultimately paving the way for a more resilient and environmentally friendly urban environment.

In the energy efficient smart city discuss the concept of utilizing advanced technology and data analytics within urban environment to optimize energy consumption across various sectors like buildings, transportation,and infrastructure, aiming to minimize environmental impact while maximizing citizen quality o life through efficient resources management and renewable energy integration, ultimately creating a sustainable urban landscape. In the smart city we can reduce the crime, improve the life of energy.

REFERENCES

1. www.Google com.
2. Smart Energy in Smart City-Rocco Papa
3. Renewable energy for smart and sustainable cities-Mustapha Hatti.
4. Verma R, Jain S, Chhabra N, Lakhena R, Aravind A,(2019) Internet of thing in smart city, New Delhi. https://doi.org/10.22214/ijraset.2020.32286
5. Ali T, Irfan M, Alwadie AS, Glowacz A (2020) IOT-based smart waste bin monitoring and municipal solid waste management system for smart cities. Arab J Sci Eng 45(12):10185- 10198. htt://doi.org/10.1007/s13369-020- 04637-w