Dhule as Smart City a Conceptual Approach

Shaikh Ibrahim[1], Hemant kuwar[2]

[1]PG Student, Department of civil engineering Department, Shri Shivaji Vidya Prasarak Sanstha's Bapusaheb Shivajirao Deore College of Engineering, Dhule, Dr. Babasaheb Ambedkar Technological University, Lonere Maharashtra, India
[2]Assistant Professor, Department of Civil engineering Department, Shri Shivaji Vidha Prasarak Sanstha's Bapusaheb Shivajirao Deore College of Engineering, Dhule,Dr.Babasaheb Ambedkar Technological University, Lonere Maharashtra, India

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Abstract - India's new remain on Smart City Development and association of different major league salary nations; starts the discussion of ideal factors for smart city advancement by our own guidelines. With a dream of Urban Governance for general reasonableness, it becomes basic to consider these boundaries and guarantee the development of our own idea of a Smart City. A brilliant city proposes to make of ideal day to day environments for individuals that accepts Information and Communication Technology (ICT) to bunches smart individuals and keen establishments. We have recognized six critical columns for fostering the structure as: Social, Management, Economic, Legal, Technology and Sustainability (SMELTS).

The Internet of Things (IoT) is a new correspondence worldview that imagines a not so distant future, where the objects of regular day to day existence will be outfitted with microcontrollers, handsets for cutting edge correspondence, and fitting show stacks that will prepare them to talk with one another and with the customers, transforming into a fundamental piece of the Internet.

Our project mainly focus on smart street light using different sensors to ON/OFF the stree light in city,It also suggest best Traffic Management system Using the Sensor which detect the vehicle mostly at the Road Intersection in Dhule city. It also include a Smart City Operational Research Centre(SCOC) for Dhule City & also Development of E-Health management System for the city.

Key Words: Internet of Thing, Sensor, Smart street light, E-health management, Conceptual approach of smart city, Smart city operational centre.

1.INTRODUCTION

The principal question is the thing that is implied by a 'Smart city'. It implies various things to various individuals. Some definitional limits are needed to direct urban communities in the Mission. A "brilliant city" would depict the coordinated administration of data that makes esteem by applying trend setting innovations to look, access, move, and interaction data. "Smart" here is viewed as a foundation quality. A smart city utilizes data and correspondence advances (ICT) to upgrade quality, execution and intuitiveness of metropolitan administrations, to diminish expenses and asset utilization and to further develop contact among residents and government. Areas that have been creating smart city innovation incorporate taxpayer driven organizations, transport and traffic the executives, energy, medical services, water, inventive metropolitan horticulture and waste administration. The result of our exceptionally old model of city development is soaring imbalance. We need to change our urban communities. Once, yet continuously.

1.1 Objective of Project

1.To develop Dhule city which will contribute basic infrastructure and give a decent quality of life to its citizens, a clean and durable environment and application of 'Smart' Solutions.
2.Moving from conventional to smart street lights
3.Smart, Safe & Happy living Management (Smart Traffic Management)
4.Increase the entrepreneurship & Innovation & Productivity of city
Development of Smart City Operational Centre for Dhule City. (SCOC)
5.Smart Parking Management for dhule city.
6. Development of E-Health Management system for Dhule city.

2. STUDY AREA

The (Dhule is situated at 20.9°N 74.78°E) area is the northwestern piece of Maharashtra state, India. Dhule is a significant city located in the Dhule District in northwestern region of Maharashtra state, India known as West Khandesh. Arranged on the banks of Panzara River . The Dhule area is located in the west by the Gujarat State and in the north by Madhya Pradesh alongside Nandurbar locale, and in the south and east by Nashik region and Jalgaon District individually. It is arranged in a valley of the Tapi River along the banks of the PanzaraRiver. The city, with mechanical regions, schools, clinics, stores and neighborhoods, has correspondences and transport foundations. Dhule is broadly known the nation over for its engineering and metropolitan plan. The town arranging of this city was

finished by Sir MokshagundamVisvesvaraya. Dhule has a benefit for being on the intersection of three National Highways viz. NH-3, NH-6, and NH-21.

2.1 Establishment of joint committee of smart people smart city

The Smart City of area to be supervised by a committee of people from different background to meet the needs of the city and future development. The Committee is led by district magistrate to collaborate among all people, government department and Authorities. Following is the proposal for formation of Joint Committee of smart people smart city Dhule.

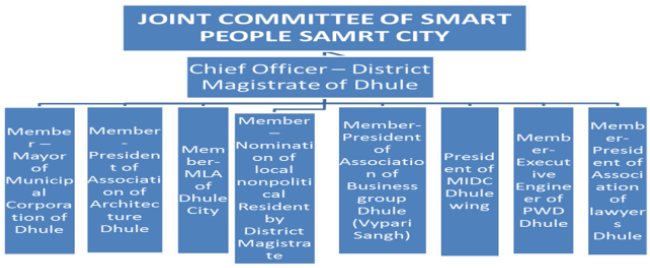

Chart -1: Joint Committee of Smart People Smart city

3.0 PROPOSED SYSTEM WORK

3.1 Smart Street Light

A smart street lamp is a public lighting apparatus that consolidates innovation, like cameras, light-detecting photocells and different sensors, to present continuous observing functionalities In this project task, the streetlamp framework, in which lights on when required and light-off when not needed. Our brilliant streetlamp framework comprises of a LED light, a splendor sensor, a movement sensor and a brief distance correspondence organization. The lights turn on before traveller and vehicles come and mood killer or diminish power when there is nobody available.

Proposed system working description (components)

1. Signal Discovery: The sensors will turn on lights when it is required or movement is in range (when vehicle cruises by).

2. Arduino: The microcontroller is the control unit with the accompanying capacities:
a. Course Statistics: Sensors distinguish the presence of vehicles.
b. Handle Output: It handles the strength of the lighting framework as indicated by the readings of sensors.

3. Power Management: This capacity guarantees the changing of LED lights so that lower lighting levels are utilized when there is movement as indicated by the clock time.
4. Calculation: Algorithms are utilized to control the lights intelligently to act as indicated by the vehicles out and about.

3.2 Traffic Management System for Dhule City

Traffic the executives is one of the greatest framework obstacles looked by non industrial nations today. Created nations and keen urban communities are as of now utilizing IoT and for their potential benefit to limit issues identified with traffic. A keen traffic the board framework gives a benefit by offering safe public transportation, severe disciplines on abusing traffic rules, tagging framework mechanization, and so on What's more, best in class answers for addressing gridlock in significant urban communities all throughout the planet. The high level tech utilizations of IoT, AI, PC vision, regulated AI, and enormous information are giving continuous.

3.2.1Method of woking

In this proposed system, the traffic lights are mostly LEDs and the car measuring sensor is an ultrasonic sensor. Both items are connected to a Microcontroller using a physical wires. The Microcontroller works for Traffic light controller device which gives the collected sensor data and control the Traffic lights by switching between green, yellow and red. The Microcontroller counts the number of cars in the street of the inter section and it is observed on the distances measured using the ultrasonic sensor and the timing between those measurements. The Microcontroller then dispatch the number of cars every minute to the local server. This overall communication is done by using the Microcontroller serial port. Then the local server interchanges the data received with the cloud server in order to better predict the changes in timings of the Traffic light. This communication is done by using Wi-Fi.

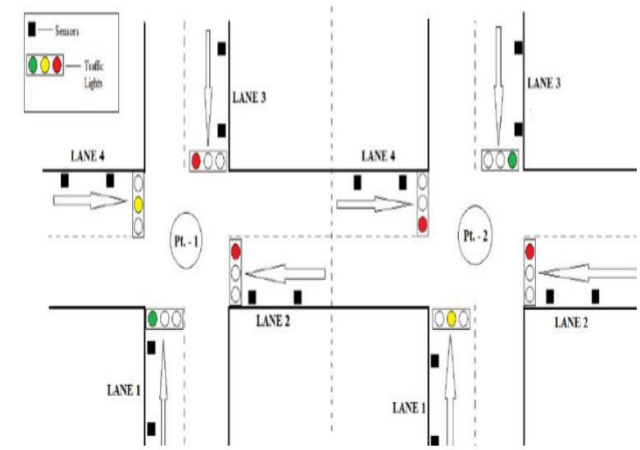

Fig -1: Control of Intersection point

3.3 Smart City Operational Centre for Dhule City (SCOC)

An Operations Center makes a keen help model that presents data in live perspectives SOC is identified with individuals, cycles and innovations that give situational mindfulness through the location, regulation, and remediation of IT dangers to oversee and improve an association's security act. A SOC will deal with, in the interest of a foundation or organization, any compromising IT occurrence, and will guarantee that it is appropriately recognized, broke down, imparted, examined and announced. The SOC likewise screens applications to distinguish a potential digital assault or interruption (occasion), and decides whether it is a real pernicious danger (episode), and on the off chance that it could influence business. A tasks place (OC) is an incorporated unit that arrangements with all the security issues on an action happens in the dhule city. SCOC gives interface/dashboards to create alert and notices progressively. Speedy and successful reaction to crisis or fiasco circumstance in city.

Security operations center tools and technologies :-

A modern SOC cannot operate without security tools. Traditional tools used in the SOC include:

1.Security information and event management (SIEM)
2.Governance, risk and compliance (GRC) systems.
3.Vulnerability scanners and penetration testing tools.
4.Intrusion detection systems (IDS), intrusion prevention systems (IPS), and wireless intrusion prevention.
5.Firewalls and next-generation firewalls (NGFW) which can function as an IPS.
6.Log management systems (commonly as part of the SIEM)
7.Cyber threat intelligence feeds and databases.

3.4 E-Health Management System for Dhule City

This project task E-wellbeing framework manages the Corporate Medicare Management. This is extremely useful to both Medicare staff just as to people in general. It is having principally two module i.e, Administration modules and Client modules. In this arrangement of work, Data Mining (DM) can contribute with significant advantages to the wellbeing sector(system), as a major instrument to inspect the information gathered by medical clinic data frameworks (HIS) and acquire models and examples which can work on quiet help and a superior utilization of assets and drug cost. In this task we are attempting to carry out what portions of an information digging project for clinic the board are equivalent or profoundly comparative across various emergency clinics (essentially in a similar public medical care framework).

3.4.1 Software Requirement Specification

OPERATING SYSTEM:WIN 98/2000/XP, UNIX/LINUX
DATA BASE : ORACLE
SOFTWARE : APACHE TOMCAT
FRONT END TOOL: DHTML
LANGUAGE : JAVA
SCRIPTING LANGUAGE :JAVA SCRIPT
WEB COMPONENTS : SERVLETS, JSP
DATA MINING TOOL: WEKA

3.4.2 Hardware Requirements Specification

PROCESSOR : Pentium-IV
PROCESSOR SPEED: 2.4GHZ
MONITOR : COLOR MONITOR
HARD DISK : 40GB
RAM : 512MB
MOUSE : SCROLLING MOUSE
KEY BOARD : MM KEY BOARD

4. CONCLUSIONS

From the above study we get the following conclusion on Smart City projects worldwide as well as the discussions presented in this project, it is possible to distil some key principles that could guide for the projects. These are briefly discussed below:-

1.Smart street lights contribute to city by helping to improve safety and reduce congestion, consumes the energy efficiency. & offer real-time diagnostics, reducing maintenance costs, and consumption meaning lighting becomes more efficient.

2.Smart Traffic Management System is implemented to deal efficiently with problem of congestion and perform re-routing at intersections on a road.

3.The use of IoT (Internet of thing) made use of sensor & other component that connect city and that helps in stronger safeguards for privacy and security against theft, robbery, accidents etc

4.Smart city operation centre (SCOC) Provides interface to generate alert & notifications in real time. Quick and effective response to emergency situation help proper and also Monitoring, control & operation of the event or activity in Dhule city.

5.E-health management system framework provide computerized clinical,digitalmedical/pharmaceutical activity in safe, quick and secure ways which will save time, money and other facilities.

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