

Simulation of Distributed Smart Street System

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Abstract – The Rising population and technology has become tremendous day by day. Under these circumstances people in the residence should have awareness of the present technology and understanding about the process of distributed smart street system which gives more secure & protected atmosphere. This whole system is totally autonomous and no manual operation is necessary indeed. In the current generation the technology has raised very great in intensity, assuming that introducing distributed smart street system which covers smart lights, security, and managing street will bring a user-friendly ecosystem. This system is simulated graphically using Cisco Packet Tracer 7.2

Keywords: smart street, cisco packet tracer 7.2.

I. INTRODUCTION

The ultimate use of distributed computation is pervasive for the wide range of smart system. However, the recent development of smart street simulation Can't able to provide effective support for the simulation and modelling of distributed software systems and even it is simulated only for home [1]. The proposed work is to give an effective way to implement a distributed Smart System works over the streets. This system comes with Lighting, Management, and Security throughout the street. However, this simulation uses a wide range of smart devices for easy communication around the street. All



Fig 1.1. Internet of Things

Simulation process is undertaken in Cisco Packet Tracer to provide easy and efficient way of simulation.

II. RELATED WORK

Here the Authors [2] proposed building automation completely for home called a smart house or smart home.

Home automation is likely to control all the working appliances or devices which includes lighting system, climatic control, multimedia devices, and other appliances. Whereas it's also included security such as smart monitoring and detection. We know that the Smart Home Automation implemented only across the residential house. In the further sections we introduce the smart street system for the street among all the connected devices like lights, alarms for better use of IoT devices which considered important constituent of the IoT.

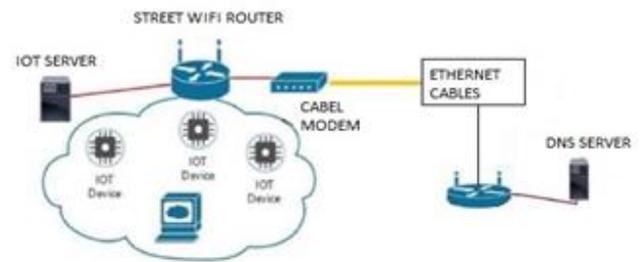


Fig 2.1. Block diagram of smart street system.

III. SYSTEM IMPLEMENTATION

The proposed system is implemented as part by part development and integration of IoT gadgets [3] and it involves 3 phases of development namely

- Lighting Management Security

A. LIGHTING

Lighting the whole street with smart IoT system to provide an efficient way for street light operation. Smart handling of lighting involves switching on the lights when there is motion that captured through motion detector fitted with lights and then the lights will turn off after the object moved ahead. So here the consumption of electricity is very low and durable for long life.

B. MANAGEMANT

Management is to keep up the street unpolluted and environment clean, for that IoT gadgets provides us the ability to do such as Garbage Maintenance, Water management system, Humidity sensing, Temperature sensing, Carbon-dioxide and monoxide and so on, where these can bring us the whole new solution of keeping the environment very clean.

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C. SECURITY

The Technology also rises the outlaw, so people seeks secure more than smart things. For that IoT provides much things that people to feel secure around their environment such as surveillance cameras and motion detectors to avoid any unauthorized entry or object moving into the street.

IV. METHODOLOGY

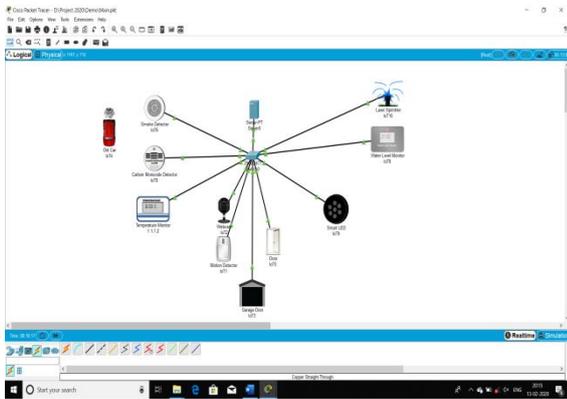


Fig 4.1 Smart Street Circuit Diagram.

The above figure represents that various components like IoT server, DNS server, link modem with the Ethernet cables to design the smart street [4].

The Server consist of

1. IoT server
2. Registration server
- 3 DNS [Domain Name Server]

The server intake all the data from the client devices in 2D working environment and operates based on the condition given by the user. In this simulation registration server controls all the devices in working environment.

V. RESULTS AND DISCUSSION

A. Configuring Host and IP address

First step is to make the server to control all the connected components then register an IP address and configure all devices with server by providing the remote server access and assigning the frequent IP address to fetch and control the end devices [5]. Then turn on the server into the Register server in services.

Open a web browser enter the server IP address to open server login creating new User ID and Password. Once the login is successful then the user can access all the control of end devices, even the user can give the conditions of working process [6].

Flow Chart

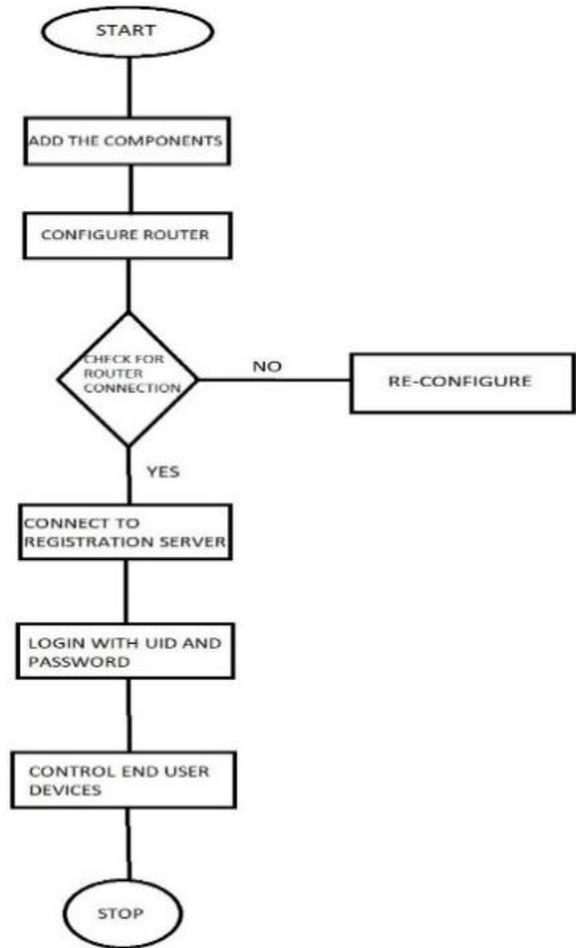


Fig 5.1. Flow Chart

The Simulation comprises the time taken for transferring and receiving data by the nodes, Packets communication, and also the logical work. The simulation also displays the Coordinates of all the devices in the 2D workspace.

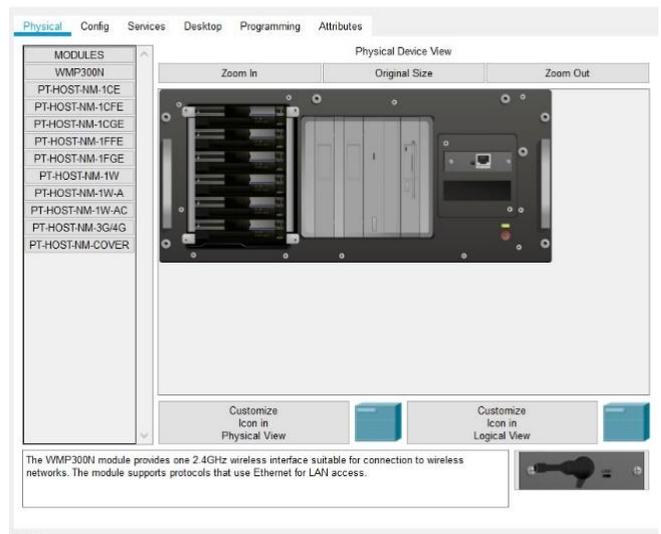


Fig 5.2. Physical view of Server.

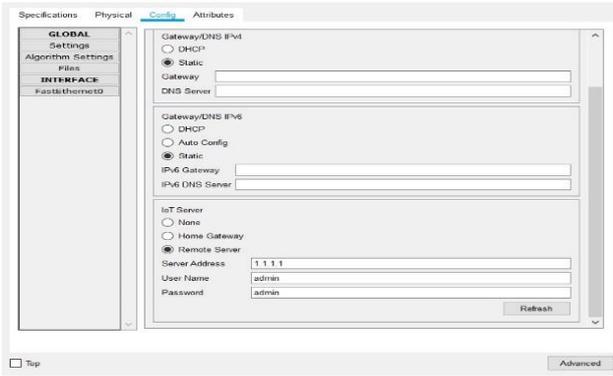


Fig 5.3. Connecting the end devices to the server.



Fig 5.6. End devices are controlled through the registration server.

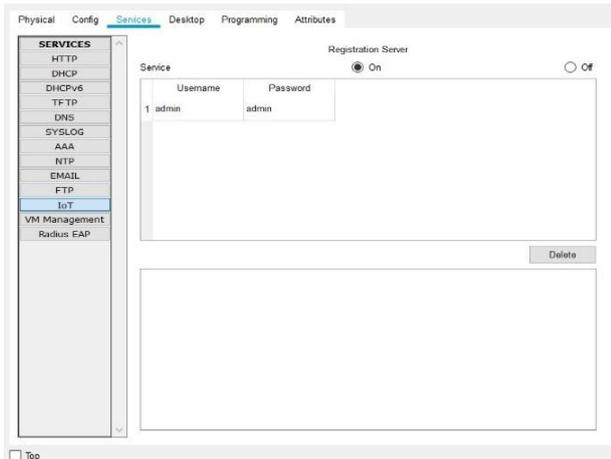


Fig 5.4. Turning server into Registration server

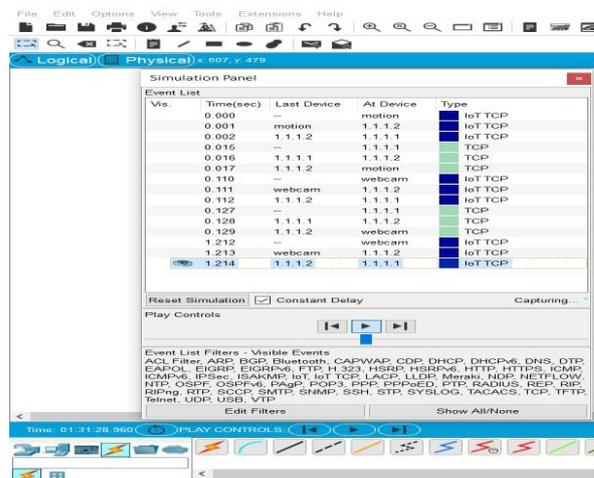


Fig 5.7. Sending and receiving the nodes in simulation environment.

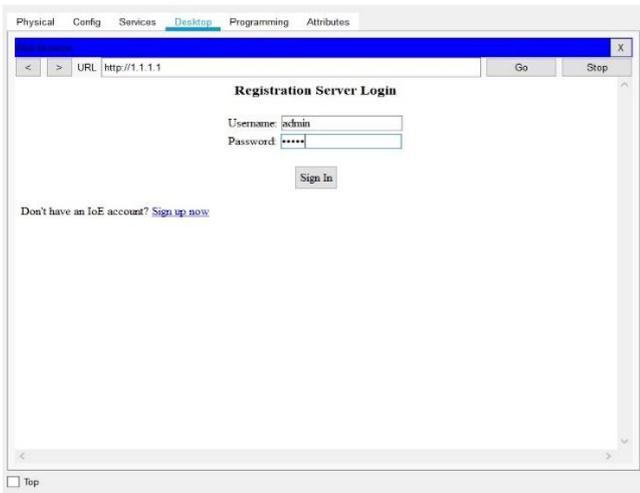


Fig 5.5. User Credential Verification.

VI. CONCLUSION

This System explores how the internet of Things and its behavior helps people to do their daily routines instead of doing manually with the help of Machineries does inter and intra connections with the gadgets.

The remote access to the gadgets which helps people to interact from long distance with no human need.

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