

IOT BASED ADVANCE OFFICE AUTOMATION SYSTEM

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Abstract

Smart office monitoring systems show a very imperative part in our existence. It makes the job comfortable and humble, so this device takes into account a smart office monitoring system for shortened and casual living. Subsystems such as biometric, door-access, lighting, heating and buzzer systems are also present in this system. The sensors are used to get data from the atmosphere in real time. The microcontroller ESP32 is accompanied by sensors. Its data progresses and provides the output. The fan, bulb, buzzer are output components linked to the controller that function when the threshold value is marked by the device. Data from the sensors is continuously collected. Smart office system concentrated on biometric, door-access, lighting, heating, and reconfiguration is intended in order to save energy and encourage the approvals of the employees. This system offers the study on how it is possible to guarantee the indoor office comfort, indoor ease is the important kinds of relief (visual, thermal, air quality, etc.) and how each of them could be analyzed.

Keywords: *Office, Automation, Monitoring, IoT, Employee*

I. INTRODUCTION

A smart office monitoring system must be considered with one person in mind that is fully likely to be employed. Rocketry is not about creative thinking and modern technology that better serves the needs of people. Among other aspects, office control allows simple recording and collaboration in real time. In order to save energy and encourage employee satisfaction, a smart office monitoring system complete with biometric, door access, lighting, enlightening, heating, and reinvigoration is installed. Office monitoring refers to the mixture of office roles traditionally related to the management of information that started with the typewriter and the copy machine in the modern history of office monitoring[1]. Today's office monitoring system is progressively understood as a term that refers not just to the computerization of tasks but to the conversion of information to electronic form as well. Efficient communication mechanisms or the use of technology in an organization's production to illustrate the positive effect on the bottom line over a period of time. Today, most people spend a lot of time in offices. The office atmosphere should be leisurely so that staff can offer their best as the office environment directly affects the employee/working worker's performance. So, in the workplace, ease is a must and it is necessary. A smart office is a home that offers workers and customers an informal life that empowers them and improves their desire to remain connected.

A new mode of communication can and should be created by IoT technology. It can be used to build new ideas and large development spaces that are not only implemented in homes to provide comfort, protection and enhance the quality of life, but can also be implemented in an office or corporation. The presence of IoT technology enables smart office implementation to be realized. To reach its maximum aim, a great organization has employees in synergy. It is then fair for an organization to enhance its efficiency and competitiveness by promoting and supplying the needs of employees at work. Possible and expressive office is one of the belongings that a company can afford to strengthen its employees to feel comfortable and motivated in giving their outstanding achievement in work[2].

Most people now devote a lot of time to workplaces. The job performance of workers is directly influenced by the workplace environment. So, comfort in the office is significant. A smart office is a network that enables workers and customers to legitimize and increase their ability to remain linked through the use of various advanced technologies and different resources and solutions to enhance user performance. A dynamic and viable society that focuses on innovation and imagination is being created because the corporal limits are bridged by life. The planet is witnessing the evolution of smart growth zones in haste. A smart office is one that guarantees the highest and most productive use of IT resources and physical infrastructure[3]. Offices in today's cohort of information technology are automated in most conflicts. There is a need for an atmosphere of technical improvement which is very straightforward. Thus, the control of the office helps the processes to become more transparent, allows for more open sharing of information, providing a comfort for making an informed decision that has a significant impact on the company's functioning. The use of different communication methods in the method, successful advanced automation, demonstrates the positive impact over a period of time on the business and development of the company or any organization. Smart office supremacy is the eradication of the production of internal monitoring, i.e. employees' in/out timings by an open office change. It also enhances productivity through enhanced coordination between members of the team that affects the performance. In order to discharge sufficient workforce capacity, a smart office must be built with one thing in mind[4].

Technology has advanced immensely in the last few years and it is still evolving on a rapid basis. New technology is evolving every day and the way of living is shifting. Like the way they shop, the way they watch films, the way they order food. In India, we have 30 crores of Internet users, 14 crores of mobile users, changing the behavior of all customers and generating huge possibilities. People have data at their fingertips, even in small towns and villages, now the technology allows people on their fingertips to monitor items like garage doors, home appliances and smart cars, etc. In recent days, smart homes are now fitted with well-advanced technologies for control and many other operations can also be conducted. This method is used to turn the target devices on and off over Wi-Fi or the Internet. With the same server, this controlling feature can also be performed around the world. This is used to enhance comfort, and protection is also provided. The purpose of this is simple to manage and we also build a web page to track the office temperature to reduce the consumption of electrical energy, thereby increasing the performance of the system[5].

A smart office must be built with one thing in mind, to unlock the full potential of the workforce. Rocket science is not about creative thought and revolutionary technology that better serves the needs of people. Office automation allows simple recording and collaboration in real time, among other things. Office automation refers to the introduction of office functions traditionally connected to information management The modern history of office automation

started with the typewriter and the copy machine that had previously mechanized manual tasks. The office automation of today is increasingly understood as a term that refers not only to the mechanization of tasks but also to the transfer of data to electronic form as well. The effective communication tools or use of automation in the output of an organization that showcases the positive impact on the bottom line over a period of time[6].

Smart construction is like a smart house, which is an intelligent space that optimizes performance, protection, comfort and collects and analyses sensor data. The construction industry absorbs a lot of energy. It is one of the major sources of energy consumption globally. Modern buildings have automated control systems, complex mechanical equipment and numerous features to enhance occupants' safety, efficiency and safety. A smart building can be called a super-system of subsystems for interconnected construction. Connectivity between all systems, devices in a building, will be needed for the smart building. It helps building managers to visualize information and make fast and precise decisions. This smart office idea can be extended to whole buildings, i.e. smart office buildings that reduce energy usage. In this paper, a comprehensive concentrated lighting, ventilating and illuminating smart office system is planned to conserve energy and enhance employee satisfaction. With a multifaceted approach that capitalizes on human behavior, Smart Office Energy Solutions achieves energy savings[7]. The Internet of Things is a system that uses computers or mobile terminals to automatically monitor the basic features and functions of the home through the Internet. Basically, office automation can offer occupants ease, comfort, protection and energy efficiency. There are three levels of the system architecture: the office work area, the office portal and the remote environment. The remote environment will notify approved users who can access the device through Wi-Fi, 3G or 4G internet networks on their mobile applications via the Internet. The Home Gateway and the hardware interfacing module consist of the office or home automation environment[8]. The Internet of Things (IoT) can be described as connecting everyday objects to the Internet, such as smart phones, Internet TVs, actuators and sensors, where devices are intelligently linked together to allow new forms of communication between things, people, and things themselves. The Internet is currently being used in the fields of cars, agriculture, security monitoring, building management, transport, smart homes and health care. Undoubtedly, the spread of the computing world is changing our lifestyle. Our working conditions have improved for the better. Advanced home automation can create a relaxing home environment, for example. Those pursuing a luxurious lifestyle as well as individuals with special needs will also benefit from home automation, as wireless control mode can allow them to conveniently and accurately carry out their daily activities. In addition, access to voice control can be used for better purposes as a command. Voice is not only the easiest and most widely used medium for sharing information between individuals, but also one of the most essential means of communication between individuals and machines[9].

II. CONCLUSION & DISCUSSION

The illuminating, lighting, heating, ventilating, access of door, smoke detection systems is being designed. Fingerprint biometric is used for security purposes. Other people cannot enter the office area. Fire alarm system is used. Whenever the threshold is crossed, Alarm will be ON and a call will be given on mobile in the service room. The smart office system in the system is based on an independent smart office and then expanded to the whole smart building. In this smart office system, two working modes, automatic mode and manual mode are used. The manual mode is viewed as a supplement of the automatic mode. If an employee forgot to switch OFF lights and fans of a particular room in the office so there is a chance of wastage of

electricity. Sometimes there is no presence of any employee in the office and still the electrical appliances like fans and bulbs left ON. Also sometimes very few employees are present in the office and still all the lights and fans are kept ON. So in this case the proposed system will keep a track of Visitors in the office and manage the electrical resources effectively. This situation can either be handled by the authorized authority or by the proposed system itself.

III. REFERENCES

- [1] A. S. Kapare and P. G. Student, "Smart Office Area Monitoring and Control Based on IoT," vol. 4, no. 4, pp. 48–52, 2017.
- [2] R. Bhuyar and S. Ansari, "Smart Office Automation System," *Int. J. Emerg. Trends Technol. Comput. Sci.*, vol. 5, no. 4, 2016.
- [3] K. Selvaraj and A. Chakrapani, "Smart Office Automation System for Energy Saving," *Int. J. Adv. Comput. Electron. Eng.*, vol. 2, no. 9, pp. 8–12, 2017.
- [4] M. N. Murthy, "A Smart Office Automation System Using Raspberry Pi (Model-B)," *2018 Int. Conf. Curr. Trends Towar. Converging Technol.*, pp. 1–5, 2018.
- [5] P. P. R. Rodge, J. Prajapati, A. Salve, and P. Sangle, "IoT Based Smart Interactive Office Automation," *Int. Res. J. Eng. Technol.*, vol. 4, no. 4, pp. 982–986, 2017.
- [6] C. Code, *Office automation*. .
- [7] S. Muñoz, O. Araque, J. Fernando Sánchez-Rada, and C. A. Iglesias, "An emotion aware task automation architecture based on semantic technologies for smart offices," *Sensors (Switzerland)*, vol. 18, no. 5, 2018, doi: 10.3390/s18051499.
- [8] R. Bhuyar and S. Ansari, "Design and Implementation of Smart Office Automation System," *Int. J. Comput. Appl.*, vol. 151, no. 3, pp. 37–42, 2016, doi: 10.5120/ijca2016911716.
- [9] H. S. Sahana, V. S. Sandeep, R. Shwetha, J. Sowmya, and K. S. Krupa, "Office Automation System Using Internet of Things," *Int. Res. J. Eng. Technol.*, vol. 4, no. 7, pp. 1619–1622, 2017.