A Review of Smart Home Automation System Using Motion Triggered Image Capturing Device and Temperature Based Fan Speed Control

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Abstract - **Smartphones have allowed people to connect to the internet without needing a computer while still offering the same functionality but through different means. With the introduction of better hardware and better software, smartphones can automate the rapid growth in the number of consumers using the hardware with internet controlling application over the past. In the present scenario, home automation hardware availability for security and electricity is found to succeed in an important stage. to guard and safeguard ones future, we'd like to save lots of energy. To protect and safeguard ones future, we need to save energy. This paper uses two prototypes and implementation of security with Wi-Fi technology, and another prototype is Temperature sense technology. The proposed system consists of a hardware interface and a mobile software interface. In the hardware interface, Telegram surveillance and the autoregulation fan control integration monitoring technology with matrix LCD.**

Index Terms - **Smart Home Automation, Intruder Detection, PIR Sensor, ESP32 Camera, Temperature, LM35 Sensor, Arduino.**

I.INTRODUCTION

A smart home automation system means protecting your home, keeping safe valuables, and keeping your family safe from potential break-ins by burglars and thieves. Intelligently connected together are ordinary items such as smartphones, Internet TVs, sensors, and web actuators, creating new ways of contact between things and other entities and between things themselves. All will now provide access for anything from anytime and anywhere, and these links are planned to expand and establish a fully advanced dynamic iot network. Technology also can be applied to make a replacement concept and broad development space for smart homes to supply intelligence, comfort and improve life quality. Our proposed system delivers a cost and energy-efficient solution for a smart home automation system using Motion triggered image capturing device and Temperature Based Fan Speed Control. Intelligent technologies are implemented each day with the advancement of technology. All is becoming more advanced and intelligible. The demand for cutting-edge technologies and smart electronic systems is growing. As the brain is given to the system, Arduino plays a critical role in designing smart systems. The new innovations that are being implemented every day have become the foundation of Arduino. The Arduino uses nearly every modern gadget, including air conditioners, power equipment, games, office computers, for its service. The Arduino consists basically of a single chip CPU, clocks, counters, interrupts, memory, input/output ports, and analog to digital converters. With this Arduino single-chip integrated circuit architecture and button-like temperature sensor LM35, the hardware size is minimized, and smart home automation systems have low power consumption.

II. RELATED WORK

A. Home automation or smart homes (also known as home automation) can be defined as the installation of technologies to provide its occupants with functionality, comfort, security, and energy efficiency within the home environment. The study and deployment of home automation is becoming more mainstream with the advent of the Internet of Things. Various wireless technology, such as Bluetooth, Wi-Fi, and cellular networks, that can allow any form of

remote data transfer, sensing and control, have been used to integrate different levels of intelligence into the home. The studies presented Telegram based home automation security systems using Android Smartphones with image capture the Internet controllability. The devices are physically connected to an ESP32 camera controller, accessed and controlled by the Smartphone using built-in WI-FI connectivity. Researchers have also been attempting to provide network interoperability and remote access using home gateways to monitor computers and equipment at home. Proposed mobile software-based architecture and its dynamic simulations without practical implementation and testing of Smart Home Security and Automation. The use of network servers, basic object control protocol (SOAP) and representational state transfer (REST) as an interoperable application layer for remote access to smart home automation systems has also been presented by a few researchers recently. Introduced a smart home management scheme over the network based on security standards.

B. Electric fan is one of the most well-known electrical devices because of its cost-effectiveness and low power consumption advantages. It is a typical circuit and is broadly utilized in numerous applications. It is also one of the most sensible solutions to offer a comfortable and energy efficient. The fan has been for quite some time used and still accessible in the market. The fan can be controlled physically by pushing on the switch button. Where right now, a change in the temperature will not give any adjustment in the fan speed. But the utilization changes the speed of the fan, which is physical. For the purpose of regulating the fan speed according to the temperature changes, automatic temperature control system technology is needed. Arduino in-home automation has been more popular in recent years. There are many advantages of smart homes and building automation systems that do only some wires of simple network. Smart Home Automation's benefits usually fall into the categories, including energy savings, home safety, user convenience, and better auto-control.

III. PROPOSED SYSTEM

A. To overcome problems in the existing securities system, our proposed system will consist of ESP32 CAM as with telegram software a central controller

that is inexpensive and PIR sensor has embedded, enabling sensing motion to detect by avoiding unnecessary loss of energy which is PIR for motion detection and distance measurement. The telegram will help in the image capturing mechanism controlled by ESP32 CAM, consisting of a face recognition algorithm.

The design presented in this work can be adjusted to fit application scenarios with optimal capture in differing respects, i.e., Every time a new object is identified on a micro-Web server, the smartphone immediately generates a new thread dedicated to the device.

B. In the proposed systems, the microcontroller plays a critical role in the production of smart systems. Microcontrollers have been an important component of the current developments that are being implemented every day. this article, a temperature-based control and monitoring framework for fan speed employing a Microcontroller system is discussed. this technique is employed to regulate the cooling system automatically, counting on the space temperature. In order to execute a control system, the system uses an Arduino board. As this method is proposed to regulate the cooling system, the Arduino-controlled system must be well understood.
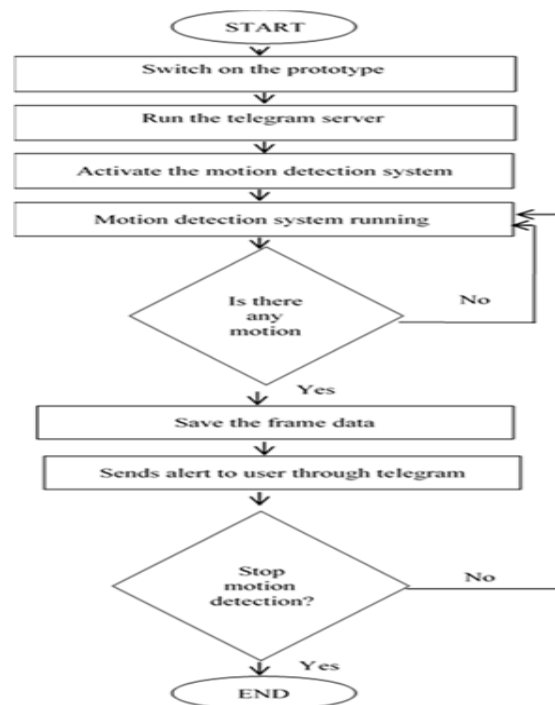
IV. SYSTEM FLOWCHART

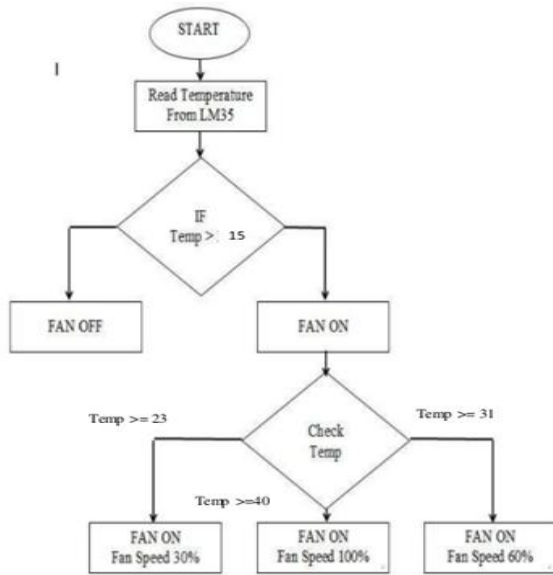Fig. III[A] Motion triggered image capturing device

Fig. III[B] Temperature Based Fan Speed Control

V. CONCLUSION

In the Smart Home Automation system, the motion detection and capturing system have been proposed as an effective solution for monitoring and surveillance and property crimes. In this paper, the improvised and integrated approach is introduced using advanced technology, ESP32 cam, and PIR sensor, which will notify the user directly if motion is detected on the Telegram application. Besides, the project produced a reliable motion capturing detection system at a relatively low cost. And this same as Temperature Based Fan Speed Control is implemented. Thus, here fan speed has been controlled by using Arduino. Modulation and Arduino board according to the temperature sensed with the help of Temperature Sensor (LM35). The idea of the project is to change the fan temperature automatically. The fan's speed depends on the weather, and there is no need to regulate the fan speed manually again and again.

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