

IoT ENABLED SMART HOME AUTOMATION USING TELEGRAM BOT

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Abstract - The Internet of Things (IoT) is an advancement technology and it plays a vital role in our day-to-day lives. It includes industrial appliances, automobiles, healthcare, sports, entertainment, and smart homes and so on. The IoT enhances the manner in which humans collaborate with the world and environment and expands our social communications with others and objects. One of the important applications of IoT is smart home automation. The energy consumption plays a major role to meet out the smart home requirements. Smart home provides home automation among the installed devices at home such as thermostat, lighting, air conditioning, etc and allows devices connected to the Internet to be controlled remotely by user. This proposed smart home automation system has Arduino microcontroller for the processing unit and it controls and provides the alerts like security perimeter, fire alert, gas leakage monitoring and send the report to users. This real time communication could be takes place between user and the system through Telegram Bot.

Key Words: Energy Consumption, Arduino Microcontroller, Security, Telegram Bot

1.INTRODUCTION (Size 11, Times New roman)

IoT is used to integrate the data picking units like sensors, communication devices are connected to the internet. This arrangement is to make a network set up i.e called as embedded network. It is additionally conceivable to get information or get data by communicating with sensors present in the external environment. The IoT devices could be classified in groups of smart sensors, user devices and gateways. The user data is provided with its own sensors that enable it to accumulate data and produce information.

The home automation [1-3] is the process of controlling home appliances automatically by various control system techniques. The electrical and electronic appliances in the home such as fan, lights, outdoor lights, fire alarm, kitchen timer, etc., can be controlled using various control techniques. Here the IoT plays a main role to control all the data collection points such as Current sensor, Voltage Sensor, PIR Sensor, etc.. The collected data can be compared and analyzed with pre tested data using popular data sets like KDD data set.

The proposed system provides a reliable connection between the system and the user in real time manner with the help of Telegram Bot software application.

2. System Implementation

The main objective of the proposed system is to rectify the problems in existing system, to automate the manual system by adding special features and monitor and control the home appliances through telegram application.

The IoT networks equipped with sensors that gather data which will be transferred over a network and actuators that allow things to act (eg. to switch on or off the light, to open or close a door, to increase or decrease engine rotation speed and more). This concept includes fridges, street lamps, buildings, vehicles, production machinery, rehabilitation equipment and everything else imaginable. Sensors are not in all cases physically attached to the things: sensors may need to monitor, in the closest environment.

The Fig.1 Shows the block diagram of proposed system. The important control unit is Arduino microcontroller[4-6]. The inputs arises from Energy meter, Voltage Sensor, Current Sensor, Gas sensor, Fire Sensor, etc are fed into microcontroller unit. The data /signal arises from the various sensors which is connected in the proposed system , the microcontroller which process those kind of data/ signal also they compared the pre tested data with a data set through wi-fi module implemented in the proposed system. The data analytics process could takes place and IoT which enables in the network to communicate the data to the user. The output of the proposed system is like alerts could intimate the user for controlling the home appliances through remotely by using Telegram bot. The telegram bot is a software application; it is available in the user mobile phone. The data/ signal from the home appliances is monitoring in real time with the telegram bot and the user take the necessary action on that.

The commands sent by control applications to actuators can be also additionally stored in a big data warehouse. The storing commands from control applications may contribute to security, as an IoT system can identify that some commands are too strange or come in too big amounts which may evidence security breaches[7-10]. The Security of IoT makes sense to log and analyze the commands sent by control applications to things, monitor the actions of users and store all these data in the cloud.

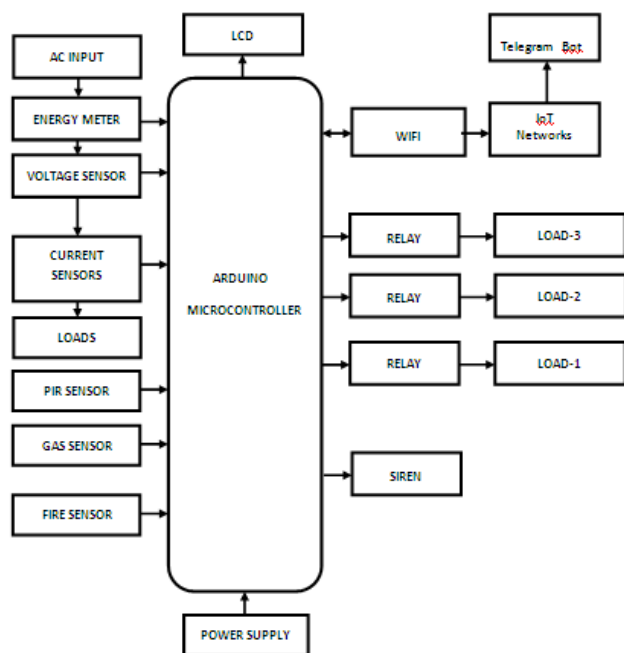


Fig -1: Block Diagram of the Proposed System

3. CONCLUSIONS

The proposed system permits the owner or the controller to have all the rights to take decisions and to regulate the home appliances with the help of an android application. This proposed system is to ensure the tightened security among the smart home automation parameters in the efficient manner. The real time monitoring and controlling of Smart home was carried out by Wi-Fi module, IoT network and Telegram -Android Application. In future, the real time monitoring and controlling of Smart home parameters can also achieved by Web Camera with web server to the ease of share the data in the Smart Home management and monitoring mechanism.

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