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HOME AUTOMATION USING BLOCKCHAIN AND IoT

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Abstract-Home automation, in essence, plays a very vital role in the modern era because of its flexibility in using at different places with high precision which will intern save time by decreasing human hard work. The general idea of home automation shows the quality of human being at the house. The prime focus of this technology is to control the household equipment's like light, fan, AC etc. automatically. In hazardous condition, it is useful for old aged and handicapped persons. In this paper, A detailed survey on home control automation using GSM. User Login on App then user able to send ON/OFF request to GSM Device from mobile using Arduino.

Keywords - *Blockchain, GSM, Aurdino.*

I INTRODUCTION

Many people don't think about home security until it's too late, until something has broken into their homes. That's when we get a call. Precautions should be taken at very early stages before its too late. Usage of android application has made this simpler. While leaving home its everyone's prior responsibility to check the gas connection, doors, windows are they properly closed or not. Many a times it may happen in a hurry we forget to close the gas nob and there are changes of leakage of gas. Using this application we are putting sensors at the window and door so that if by mistake they are opened user will get notification. The main feature of this is image recognition which will be done through the same android application. The working will be if the owner image matches then we will be glowing the green led depicting that the door has opened. We also have to add a gas sensor which on detection of the leakage of gas will automatically open up the window. We are creating a window which will move on the command from the hardware. The sprinkler will turn on to extinguish the fire. On LPG gas leakage the window will open and a notification will be sent to the owner's android application. Block chain is a new method of storing data into database which enables decentralized storage and increases efficiency.

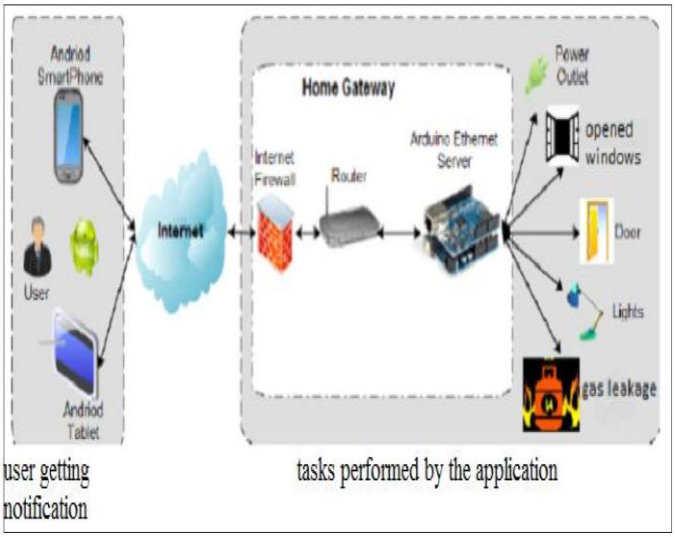

Figure 1. System Architecture

II ALGORITHM

AES Algorithm:

AES 128 bit Encryption-Decryption algorithm: The Advanced Encryption Standard or AES is a symmetric block cipher used by the U.S. government to protect classified information and is implemented in software and hardware throughout the world to encrypt sensitive data. The features of AES areas follows:

1. Symmetric key symmetric block cipher
2. 128-bit data, 128/192/256-bit keys
3. Stronger and faster than Triple-DES
4. Provide full specification and design details
5. Software implementable in C and Java.

III OVERALL DESCRIPTION

A.PRODUCT PERSPECTIVE:

•With the increase in consumption of energy and population, there is a grave need to conserve energy in every way possible.
•The inability to access and control the appliances from remote locations is one of the major reasons for energy loss. A web or an android application is used by the users to give instructions to these systems.

•This system can make use of a host of communication methods such as Wi-Fi, GSM, Bluetooth, ZigBee.
•Main Perspective is consumption of energy using web or android applications from remote locations.

B.PRODUCT FUNCTION:

1. System provides Registration module to register user, User Register on Application with basic info store in Sqlite Database.
2. Provides Login module to login user on App. 3. After successful login to the application User will able to send On/OFF command on GSM device by text message, then GSM send this message to Arduino device and it control Fan/AC/Bulb Device

IV MATHEMATICAL MODEL

S= S, s, X, Y, T, fmain, DD, NDD, ffriend, memory shared, CPU count

S (system):-Is our proposed system which includes following tuple

s (initial state at time T) :-GUI of Home Automation. The GUI provides space to enter a query/input for user.

X (input to system) :-Input Query. The user has to first enter the query. The query may be ambiguous or not. The query also represents what user wants to search.

Y (output of system) :- List of URLs with Snippets. User has to enter a query into Home Automation then Home Automation generates a result which contains relevant and irrelevant URL'sand the ir snippets.

T (No. of steps to be performed) :- 6. These are the total number of steps required to process a query and generates results.

fmain (main algorithm) :-It contains Process P. Process P contains Input ,Output and subordinates functions. It shows how the query will be processed into different modules and how the results are generated.

DD (deterministic data):- It contains Database data. Here we have considered ON OFF Trigger values . which contains number on off trigger values . Light ON OFF trigger value use for showing results. Hence, ON-OFF trigger value is our DD.

NDD (non-deterministic data):- No. of input queries. In our system, user can enter numbers of queries so that we cannot judge how many queries user enters into single session. Hence, Number of Input queries are our NDD.

ffriend :- WC And IE. In our system, WC and IE are the friend functions of the main functions. Since we will be using both the functions, both are included in ffriend function. WC is Web Crawler which is bot and IE is Information Extraction which is used for extracting information on browser

Memory shared:-Database will store information like list of receivers, registration details and numbers of receivers. Since it is the only memory shared in our system, we have included it in the memory shared.

CPU count:-2. In our system, we require 1 CPU for server and minimum 1 CPU for client. Hence,CPU count is 2.

A. Algorithm:

Step 1: register on App with Mobile no,UserName and Password.
Step 2: Get user Trigger value.
Step 3:call Arduino function Step
3.1:Get U as Input to TD. Step
3.2:for i=0 to MAX //MAX = maximum no of Trigger to be generated by user.
Step 3.3.:trigger goes to TD
Step 4.1:Get TDas Input.
Step 4.2:Call Arduino function
Step 4.3: Process trigger data.
Step 5: Display Result Light ON or OFF.
Step 6: Stop.

V CONCLUSION

Here is that protecting our homes is our responsibility and not of the neighbours. So, before leaving home one should check the lights wheather ON/OFF. Gas regulators nob should be checked. Windows and doors should be closed properly. System is decentralized

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