Hydro Extraction Spying And Domotics Security Devices Controlled By Mobile Application

Sangeetha S[1], Pavithra K[2], Dhivya K[3], Dr.P.Gomathi[4], Mr.R.Sathishkannan[5]
[1, 2, 3] Dept of Computer Science and Engineering
[4]DEAN, Dept of Computer Science and Engineering
[5]AP, Dept of Computer Science and Engineering
[1, 2, 3, 4, 5] N.S.N. College of Engineering and Technology- Anna University

Abstract- *Due to human influence and its negative impacts on the world's environment, the world is changing into a cleaner and more sustainable energy system. In both private and public buildings, there is a desire to reduce water usage, automate secure door authentication, and optimize the electricity usage of a building. This system presents the design and implementation of a secured smart home switching Application which integrates access control of the door open/close, electricity, usage level of water resource management in the buildings. It gives major two contributions to the design of smart home systems: 1) A practical design and implementation of security for a building's power supply which adds a locking feature such that only authorized personnel are capable of altering the power state of the smart sockets and switches in a building, and 2) A model of water level storage system for the active electronic components of the circuitries and wireless communication for smart valves and sensors. The access control system provides means of access control by having a security keypad, provided the user knows the security pin code. The experimental results obtained from extensive testing of the prototype shows an improvement in security and energy management in buildings*

Keywords- Mechine Learning, Domotices security Devices, Door Locking, Internet of Things, Water Flow Indicator, Water Level Measurements.

I. INTRODUCTION

HOME AUTOMATION:
VOICE RECOGNITION CONTROLLING LIGHT

Home automation is the process of controlling home appliances automatically using 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. Home automation includes all electronic components, subsystems of the house and company such as heating, garage door, entrance gate, shutters, electronic outlets etc. to meet the comfort needs such that energy management & optimization of lighting & heating, home automation has been developed to provide technical solutions. Hence improved through a use of a communication network that includes a pair of twisted lines, fiber optics in a bus based network or an internet protocol as standards.i.e home automation, water monitoring and health monitoring etc. data acquisition plays a very important role.

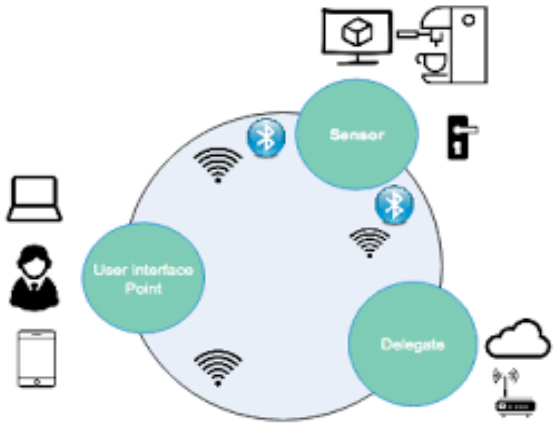


Fig 1:- Door Locking System

The proposed system designed and implemented a low cost credit card sized raspberry can be control through internet under the android environment, household equipment such as heating, water tank level motioning , air conditioning, etc. Application consists to develop programs that allow to communication between a remote user using a smart phone, web browser and raspberry pi card that communicate with one or more interface cards to control the Equipment in the home using solar energy.

II. WATER LEVEL INDICATOR

According to a recent survey, the growth in population caused cities to face water distribution issues. Many communities suffer from insufficient water supply for their day to day needs. Lack of monitoring and controlling water distribution becomes a serious problem. Some areas in a city will have enough supply of water while other areas do not have. This is due to some problems in the distribution line such as a damage pipeline cause by over pressure or low water

pressure where in water cannot reach consumers located on a high-ground areas or far away from the pumping stations or water tank. All of these issues concerning water distribution are because of lack in real-time monitoring and controlling mechanism and due to its manual or traditional operation. Today, cities are now transforming and started to adapt smart technologies for sustainable communities. As they participate for economic advancement and the facilities that increase to their vibrancy, water has become a priority in their checklists. Creating water sustainability requires a multidisciplinary approach. It also requires state of the art equipment to facilitate the operation and management, especially in collecting and analyzing data to initiate an action for smart management, planning and decision making.

III. EXISTING SYSTEM

Most of the smart home automation systems that are existing only automate the basic process of changing the state of the appliances to ON/OFF. There are many smart home mechanization systems in the market that aim to automate the basic operations of these home appliances using various technologies such as GSM (Global System for Mobile), NFC (Near-Field Communication) and Wi-Fi. The existing smart home systems have an elaborate procedure to interact with the home appliances. Various technology companies have been trying to create amazing products in the department of home automation system since a decade ago.

- **Disadvantages OF EXISTING SYSTEM**

1. Wastage of power and water supply
2. High cost, Time taken
3. More manual work needed
4. Less efficiency
5. Inconvenience to control various devices

- **system requirements**

Hardware Requirements

- Raspberry Pi 3 B+
- Micro SD Card
- HDMI – VGA Cable
- 15W Micro USB DC Power Supply
- Light Sensor
- Water Level Sensor
- Water Flow Sensor
- Water Pump Motor
- Relay
- GSM Module

Software Requirements

- Raspbian OS (NOOBS)
- SD Card Formatter
- Python

IV. PROPOSED SYSTEM

The primary objective of our project is to construct a fully functional voice based Home automation system that uses Internet of Things, Artificial Intelligence and Natural Language Processing (NLP) to provide a cost-effective, efficient way to work together with home appliances. There are many smart home solutions in the market that aim to automate the basic operations of these home appliances using various technologies such as GSM (Global System for Mobile), NFC (Near-Field Communication) etc. However, most of these systems focus on mimicking the basic operation of the electrical switch.

Our project aims at providing a fully automated voice based solution that our users can rely on, to perform more than just switching on/off the appliances. The user sends a command through speech to the mobile device, which interprets the message and sends the appropriate command to the specific appliance. It aims to implement three basic home appliances, which includes Fan, Light and Door Alarms.

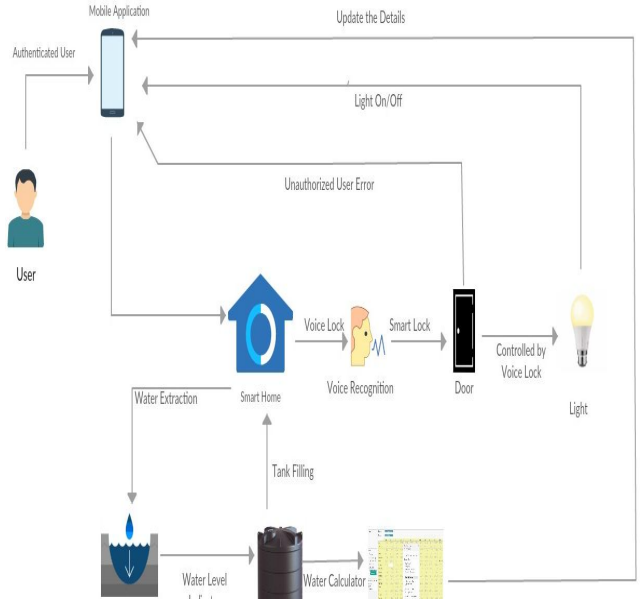


Fig 2:- Home Automation system

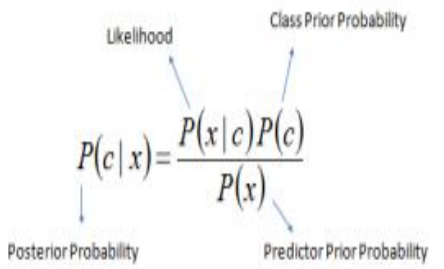
The voice command given by the user is interpreted by the mobile device using Natural Language processing. The mobile device acts as a central console and it determines what operation must be completed by which appliance to fulfill the

user's request. The central console might likewise be either a desktop application, web application or a smart phone application as nearly all of the data transferred can be processed by the cloud. However, for the convenience of the user and increased mobile capabilities, a smart phone is used. The appliances are associated with the mobile device through a raspberry pi Board that establishes the concept of Internet of Things. The Raspberry pi boards are interfaced with the appliances and programmed in a manner that they respond to mobile inputs.

V. ALGORITHM AND TECHNIQUES

DOOR LOCKING SYSTEM

The Home Automation system can receive the GSM information to the Mobile Application. It uses Machine Learning for predicting the Voice recognitions of Door Locking system. The algorithms used in prediction are SVM and Naive Bayes.



$$P(c|X) = P(x_1|c) \times P(x_2|c) \times \cdots \times P(x_n|c) \times P(c)$$

…….. Eqn 4.1

WATER LEVEL INDICATOR

The Water level calculation system is using the Multi-Capacitor *sensor algorithm for Water level indicator*. The *water level* calculation technique is based on the capacitance measurement of a multi - capacitor *sensor* partially immersed into the liquid. Finally, the capacitance - *level* formula is plotted for fastening the *level* "reading" procedure.

APPLICATIONS & USES OF WATER LEVEL INDICATOR

The uses of a water level indicator include the following applications:

1. Can be used in water tanks to control water levels
2. Automatically turn ON/OFF pumps
3. Can be used in factories, commercial complexes, apartments, home,
4. Pool water level control
5. Sewage pump level control
6. Remote monitoring liquid
7. Pump controller
8. Stream level monitoring

BENEFITS OF WATER LEVEL INDICATOR AND WATER ALARMS

There are many benefits of water level indicators and water alarms including:

1. Easy installation
2. Automatically adjusts water levels
3. Save money by using less electricity and water
4. Can help avoid seepage of roofs and walls due to tanks overflowing
5. Indicates water levels in any type of storage tank or body of liquid
6. A water alarm is loud so you can easily hear it

VI. ADVANTAGES OF PROPOSED SYSTEM

1. Easy to use
2. Greater support for various environments
3. Available as a handheld device
4. Reduced Power consumptions and Avoid water scarcity
5. Daily updating and Modification

VII. APPLICATIONS

- **Heating, ventilation and air conditioning (HVAC):** It is possible to have remote control of all home energy monitors over the internet incorporating a simple and friendly user interface.
- **Lighting control system:** A "smart" network that incorporates communication between various lighting system inputs and outputs, using one or more central computing devices.
- **Occupancy-aware control system:** It is possible to sense the occupancy of the home using smart meters and environmental sensors like CO2 sensors, which can be integrated into the building automation system to trigger automatic responses for energy efficiency and building comfort applications.
- **Home robots and security:** A household security system integrated with a home automation system can

provide additional services such as remote surveillance Leak detection, smoke and CO detectors

- Home automation for the elderly and disabled.
- Pet and Baby Care, for example tracking the pets and babies' movements and controlling pet access rights.

VIII. SOFTWARE DESCRIPTION

PYTHON

Python is a wonderful and powerful programming language that's easy to use and with Raspberry Pi lets to connect the project to the real world. Python syntax is very clean, with an emphasis on readability and uses Standard English keywords.

Fig 3:- Menu Page (PROGRAMMING RUNNING PAGE)

IX. RESULTS

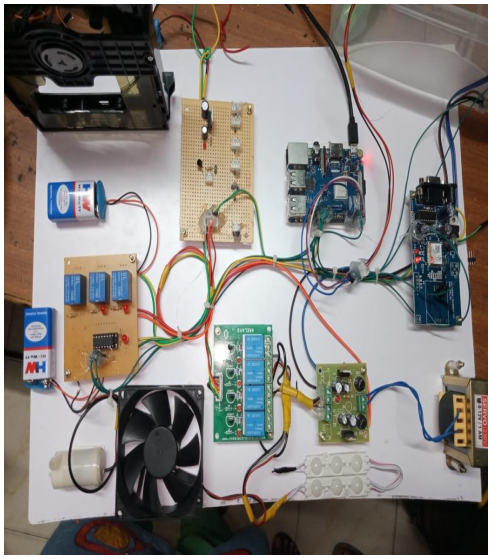


Fig 4:- Project Setup (HYDRO SPYING & DOMOTICS SECURITY DEVICES)

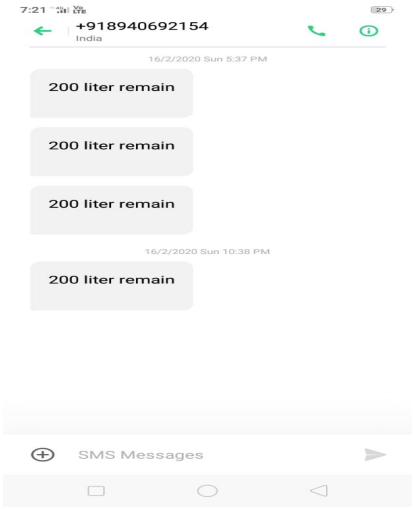


Fig 5:- Message Intimation to Mobile Phone (WATER LEVEL INDICATOR)

X. CONCLUSION

This project is productive in providing enough security as long as the password is not shared. In future enhancement “Password based Door Lock System” can be provided maximum security in order to completely satisfy user’s needs. Hence, a common man can afford to buy such locking system in minimal cost to keep his valuables safely without any worries. This project was intended to design and implement low cost automatic water level indicator and controller. This is not only for water tank but also can be used for various liquids & oil level in industries and chemical labs too. To design this system, transistor is used as a platform connected to relay along with local materials for low cost. A new system is designed in such a way that its components will be available easily and when connected together, will be able to prevent the wastage of water. The whole system operates automatically. So it does not need any expert person to operate it. It is not at all very expensive. This design has much more scope for future research and development.

XI. FUTURE SCOPE

Automatic Water Level Indicator & Controller can be used in different sectors such as Hotels, Factories, Homes Apartments, Commercial Complexes, Industries, and Agricultural Purposes etc. It can be used to indicate fuel or oil levels in tanks or vehicles. In future, this circuit can be upgraded with some sensor which can automatically stop the power supply of the driving pump or motor. As a result the future circuit is not very cheaper than the present one, but tries to make it simple access of getting intimations and warning messages through GSM Module.

REFERENCES

[1] Prof.A.Y.Prabhakar1,Prof. Dr. Shruti K Oza, Nayan Shrivastava, Prakhar Srivastava,Garvit Wadhwa, "Password Based Door Lock System", International Research Journal of Engineering and Technology (IRJET), Volume: 06, Issue: 02 | Feb – [2019].

[2] AdekolaOlubukola D, Akinsanya Adeoluwa, Olufowobi Abraham, Babaji de Oyetunde, SomefunOlawale M, Oduroye Ayorinde, "Voice Recognition Door Access Control System", IOSR Journal of Computer Engineering (IOSR-JCE) Issue 5, Ser. I , Sep - Oct [2019].

[3] Soumyajit Mitra, Priya Mishra, J. Ajay Daniel, S. Balaji , "Smart Light for Home with Automatic Direction and Intensity Adjustment using Arduino International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8, Issue-1S4, June [2019].

[4] M. Sowket Ali, Md. Shoaib Akther Kiron, Kok Wai Chan, and Mok Vee Hoong, "Password Protected Electronic Lock System for Smart Home Security", https://www.researchgate.net/publication/325093383, Research Proposal · April [2018].

[5] Siti Nurmaini,"Real-Time Lighting Control System for Smart Home Applications", https://www.researchgate.net/publication/328526830 , Article · October – [2018].

[6] Ajinkya Kaner, MilindRane," Automatic Water Level Indicator & Controller (To control water level of over head tank)", International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE), International Journal of Advanced Research in Electronics and Communication Engineering (IJARECE) Volume6, Issue 11, November – [2017] .

[7] Burhanuddin Bharmal, Aniruddha Shahapurkar , Akshay Aswalkar, "Automatic Home Lighting solutions using Human Detection, Sunlight Intensity and Room Temperature", International Research Journal of Engineering and Technology (IRJET) , Volume: 04 Issue: 06 | June –[2017].

[8] Madhurima Santra, Sanjoy Biswas, Sibasis Bandhapadhyay, Kaushik Palit, "Smart Wireless water level Monitoring & Pump controlling System", International Journal of Advances in Scientific Research and Engineering (ijasre) , Volume: 03, Issue 4, May – [2017].

[9] Aman Kumar Jha, Ranajay Mallik, and Jitendra Jain, "Smart Home Lighting sytem", https://www.researchgate.net/publication/322029681 , Volume 121 – No.15, Jan – [2017].

[10] Roohul Khan, Saiful Islam, Ram Karan Singh," Methods of estimating ground water Recharge" https://www.researchgate.net /publication/303435940, Article · February [2016].