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KITCHEN AND STOCKPILE MONITORING SYSTEM USING RASPBERRY PI :A REVIEW

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ABSTRACT

Today's homes require sophistication control in its different gadgets which are basically electronic appliances. The Raspberry Pi is also a great way to inexpensively automate a smart kitchen, and there are easy-to-follow DIY recipes for doing so online. "Aside from the Arduino, the Raspberry Pi probably has the largest community for any single piece of hardware currently on the market," Home automation not only refers to reduce human efforts but also energy efficiency and time saving. Automation of the surrounding environment of a modern human being allows increasing his work efficiency and comfort. The Raspberry Pi plays the major role in converting the regular home into a smart home This will help the home owners to provide a simple, fast and reliable way to automate and manage their home. This focuses on home automation which is implemented by the Raspberry Pi for the automation of light and fan (on/off) , stockpile monitoring , gas leakage in kitchen through smart phone. Home automation is used to control the devices of the home easily without any human interaction .When people are going out from home they have to check whether they have switched off all the lights, fans, etc. But by using this automation there is no need to do that all this checking and waste time because everything can be operated from the smart phone itself.

Keywords: *RASPBERRY PI 3 B, Load sensor , Gas Sensor, Ultrasonic sensor.*

I. INTRODUCTION

Kitchen environment monitoring is one of the important measures to be closely monitored in real-time for safety, security and comfort of people. With the advancements in Internet technologies and Wireless Sensor Networks (WSN), a new trend in the era of ubiquity is being realized. Enormous increase in users of Internet and modifications on the internetworking technologies enable networking of everyday. Raspberry pi based kitchen monitoring system is used as a Embedded Web Server, User can control Set of devices from Phone/PC Web Browser. We have designed and implemented a compact wireless sensor network with internet capability. The system can monitor the status of kitchen and send an alert SMS automatically to users. The system has the capability to control through internet, where the subject of received email is read by the developed algorithm fed into Raspberry pi and then the system responds to the corresponding instruction with high security. The user can directly log in and interact with the embedded device in real time without the need to maintain an additional server. Here the project also proposes the sensors interfacing with the controller and GSM modem too. If there is the Gas detection or fire the message will be sent through the GSM. The system is modularly built, allowing different modules to be added. The consumer can choose any quality of an edible depending upon their own needs. So by obtaining this process the food wastage can be reduced and will be able to achieve pollution less environment. In addition, it is flexible to accommodate a wide range of measurement devices with appropriate interfaces. It has a variety of features such as energy efficient, intelligence, low cost, portability and high performance.

II.   KEY FEATURES OF AUTOMATION SYSTEM

In recent years, wireless systems like Remote Control have become more popular in home networking. Also in automation systems, the use of wireless technologies provide several advantages that could not be achieved with the use of a wired network only.
1] Reduced Installation costs
Installation costs are significantly reduced since no cabling is necessary.
2] Internet Connectivity
Control devices from anywhere in the world with use mobile phones to control smart home.
3] Scalable and Expandable
With the Compare of Wireless network is especially useful when, due to New or changed requirements, an extension of the network is necessary.
4] Security
Easily add devices to create an integrated smart home security system and built-in security ensures integrity of smart home.

III.   LITERARTURE SURVEY

1] Sarthak Jain, Anant Vaibhav, Lovely Goyal proposed system on Raspberry Pi based Interactive Home Automation System through E-mail in which the light will automatically ON/OFF and send E-mail to owner.
2] Shrikrushna Khedkar & Dr. G.M.Malwatkar proposed system that allows you to control lamps, wallSwitches, can customize the timing of lighting for particular room and specific time. HVAC Regulation allows to control heating and cooling the room base on schedule time. Lawn Irrigation, sprinkler control systems are providing water regulation through real time communication with local weather data. Smart Appliances such as smart refrigerators allow to scan store grocery and alert you if an item is about to expire. Security Systems such as window sensor, motiondetectors video cameras and recording mechanism connected to mobile via cloud to access real timesecurity status of your home.

3] Areeg Abubakr Ibrahim Ahmed, Siddig Ali Elamin Mohammed, Mohamed Almudather Mahmoud Hassan Satte proposed system on a fuel management system that measures tank's fuel level to be displayed through web based application and design of camera surveillance system for station. At the same time this management system can store the transaction information in the database that can generate daily, weekly, monthly and yearly business report.
4]Kunal Nayak, Siddhesh Jawale, Ramlalit Yadavpropose system that smart home automation system will monitor the environment using the PIR Motion Sensor. If it detects motion, the system will turn on the lights or other appliances based on the user preference. Once it stops detecting motion after a pre-configured time, the system will turn off the appliance. Meanwhile if the system receives any command from the android app or from gestures, it will override the presence detection system.

5] Bhagyashri Nagorao Dhondge ,Suhas Sayajirao Jahdavproposed system that Appliances react automatically to changing environmental conditions and can be easily controlled through one common device. This wireless technology is especially useful in home environment, where there exists hardly any infrastructure to interconnect intelligent appliances. To control application wirelessly can control devices from anywhere

6] E. Rammohana Reddy, K. Sankara Design system in which When the switch in the smart phone is ON then the tube light is getting ON. When it is turn OFF the tube light is getting OFF. When the switch is press ON then the fan rotates when the switch is press OFF then fan stops rotating automatically.

7]Krithika Jayasankar, Karthika B, Jeyashree T, Deepalakshmi R, Karthika G. proposed system a new prototype for the detection of freshness in fruits. In current scenario, people don't analyse how fresh the fruits and vegetables they are consuming. The prototype comprises of a conveyor belt setup which includes various sensors like proximity sensor, load cell and gas sensor.

8] J.Damodhar and S.Swath proposed system, in which kitchen parameters such as gas leakage, fire, light intensity and LPG gas weight age can be monitored and also controlled by the modules such as when gas will be detected exhausted fan ON automatically to send gas outside of the space and also when fore will be detected AC motor will be ON to sprinkle the water to remove the fire. This all information will be sent to the concerned authority via GSM and also Email.

IV.   CONCLUSION

In this highly developing era, where directly or indirectly, everything is dependent on computation and information technology, Raspberry Pi proves to be a smart, economic and efficient platform for implementing the automation. This provides a basic application of automation using Raspberry Pi which can be easily implemented and used efficiently. The code provided is generic and flexible in a user friendly manner and can be extended for any future applications like power control, surveillance, etc, easily.

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