ABSTRACT

Home Automation is one of the most fascinating fields in the world of technology. The goal of the automation is to use already existing components and integrating them to enhance the functionality of the whole system. This system will be able to control electrical and electronic devices used at home, to make our lives easier and comforting. The automation is done using wireless technologies. The main advantage of this system is its limitless range.

It is controlling home appliances automatically with the help of various control systems. The design of the system is in such a way that the user can access the data anytime and anywhere as it is connected to the network. Various modules implemented include gate control, door control, water level control, fan control, AC thermostat and garden irrigation using required sensors. Sensors used can provide the data as status of device, environmental context, water level, energy usage, direction, pressure, temperature and many more. The system is easy to control homes from any location and at any point of time. Apart from the scalability features, the system also ensures security and privacy.

A smart sensor is a device that takes input from the physical environment and uses built-in compute resources to perform predefined functions upon detection of specific input and then process data before passing it on. Smart sensors enable more accurate and automated collection of environmental data with less erroneous noise amongst the accurately recorded information. These devices are used for monitoring and control mechanisms in a wide variety of environments.

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CHAPTER 1

INTRODUCTION

This project presents an idea to provide a system to make devices work simultaneously by connecting them to a network. To make the home smart, the devices need some information to be smart and this is when we require the use of sensors for mapping the physical environment to the digital environment. With the advancement of technology, a smart phone is used as the centralized system to monitor the working of the devices and receiving timely notifications to make the user notified about the happenings of the same.

Home Automation is also referred as Domotics. Home automation is controlling home appliances automatically with the help of various control systems. It is used for controlling the indoor & outdoor lights, heat, air conditioning in the house, to lock or open the doors & gates, to control electrical & electronic appliances and so on using various control systems. The design of the system is in such a way that the user can access the data anytime and anywhere as it is connected to the network.

Various modules implemented include gate control, door control, water level control, fan control, AC thermostat and garden irrigation using required sensors. Sensors used can provide the data as status of device, environmental context, water level, energy usage, temperature and many more. The system is easy to control homes from any location and at any point of time. Apart from the scalability features, the system also ensures security and privacy. The popularity of this system is the Smart Sensing, which is used to control the home appliances according to certain priorities as set by the algorithm.

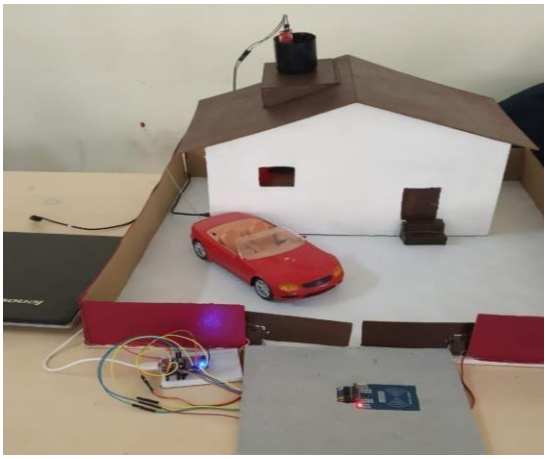

Figure 1.1: Home Automation Model

CHAPTER 2

LITERATURE SURVEY

[1] S.Anusha, M.Madhavi, R.Hemalatha, "Home Automation using Microcontroller and Android Application", International Research Journal of Engineering and Technology (IRJET), Volume: 02 Issue: 06.

Smart houses are controlled by various micro controller systems. The designed system consists of modules which are connected to both. Mickro c and Arduino software. The sub-systems include, a fire alarm system used to alarm during the outbreak of fire and extinguishing it remotely, a burglary alarm that signals the occurrence of burglary, garage door remote controlling and curtains control to enable and disable sleep mode. Automated Irrigation System focuses on "Microcontroller based drip irrigation system".

[2] S.Mahendra, M.Lakshmana Bharathy, "Microcontroller Based Automation of Drip Irrigation System", AE International Journal of Science & Technology – January 2013-Vol 2 Issue 1.

By using sensors, the awareness about the changing conditions of humidity, scheduling the proper timing for water supply can be done. Microcontroller based automatic plant watering system focuses its domain on the concept of drip or trickle irrigation. The key elements considered to design the model included, the flow and pressure of water, water supply, timing and the amount of water needed for a particular soil texture. This functionality of the system has been tested thoroughly and it is said to function successfully.

[3] Pavle Skocir, Petar Krivic, Matea Tomeljak, Mario Kusek, Gordan Jezic, "Activity detection in smart home environment", 20th International Conference on Knowledge Based and Intelligent Information and Engineering Systems, Procedia Computer Science 96 (2016) 672 – 681.

Presented, were the two approaches for activity detection in a smart home environment. The activities included entrances to a room, applications for monitoring and regulating the temperature of the room, etc. Two concepts were used, namely, sliding window and artificial neural network. These algorithms were tested offline, on data sets