

# A Survey on Remote Sensing Devices

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**Abstract:** - Technology changes day to day and with the improvement of technology the method of using and handling devices also changes and hence today we see wide range of technology like, Devices used in home are controlled using Bluetooth, Wi-Fi, Android etc., and this paper gives the detailed description of how the devices can be controlled using the different technologies and the evolving technologies in the field of Remote sensing Devices which can also be called as the Smart home Technology. And today we need to thank the continuous standardization process that is lowering the prices of the products that is been used in the daily needs and hence related to this comes the issues like security, reliability, robustness, price etc. Hope will meet the standards of the user.

**Keywords:** Remote sensing, Smart home, Devices.

## I. INTRODUCTION

Smart home concept came into existence in the year 1966, and main reason for the introduction of the smart homes was that the physically challenged people could handle the devices in home more efficiently and easily without help of others.

The term smart home can also be called as the “Domotics” is the application of computer and robot technologies to electronic appliances in home [1]. Because the smart home concept is gaining more and more importance these days it pays way for the marketers to easily gain benefits in the developing technology and the smart home as certain disadvantages like it may not easily accepted by the old and hence while designing the smart home one as to care of the easy handling of the devices by the users and it should meet the requirements of the customer.

The smart home coined today as the intelligent home as gained the rapid importance these days and these technologies can be implemented using different standards and modes which is available today [2].

The smart home in today’s context are gaining more and more importance because of the sophisticated use of the devices like mobile, pc, laptop etc., and hence it saves time, and also provides the security and the example could be like suppose the user can switch on the heater before reaching home by using his mobile and before he reaches home the hot water is ready for the user this could be useful in the cold countries.

Today the technology is developed to extent where the smart home are now wireless than wired smart homes and presently in there are certain smart cities building across the globe like “songdo” in South Korea. And the technology became more and more popular by the introduction of the new Topic Called IoT (Internet of Things)[3],

In his paper we will see the different technologies or platforms that is been used in the smart home system and see the brief description of how it is been Implemented.

## II. IMPLEMENTATION PLATFORMS

**A.REMOTE CONTROLLED SMART HOME:** First let us see the remote controlled smart home system and the system must be designed of the 3 basic things like study the needs and then give definition to the needs and then install the system.

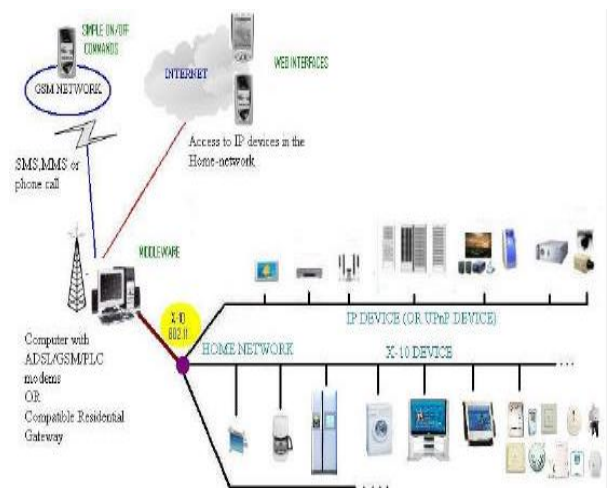


Fig1: The architecture of smart home system via remote control

The above diagram explains the remote controlled smart home where the uPnP (Universal Plug and Play) devices are connected to the home network using the X10 standard and from there it is been connected to the pc from where the information in the pc is transferred via GSM (Global systems for mobile communications) and the data sent can be accessed by user and control the devices via internet based upon the messages received by the GSM Network.

**B. BLUETOOTH:** Now the era of mobile phones and pc have been updated and there are many built in features available in the phones one of the most important is the Bluetooth [4]. Now let us see the smart home system controlled by Bluetooth.

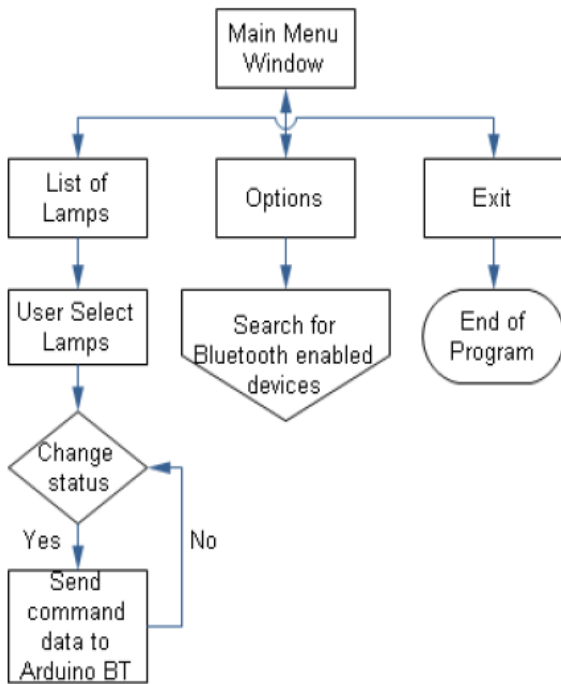


Fig 2: Flowchart of Smart home system using Bluetooth

Upon the execution of the program, it first checks if Bluetooth is already enabled in phone. If Bluetooth is enabled, the device and service discovery process will run, then the software will check for the predefined devices in the phone if they exists it will show or else it will check for the devices that are listed in the Bluetooth range and will then verify if the device is a Bluetooth transceiver (Arduino BT board). Now if there are no devices stored in memory, the program will search for Bluetooth activated devices within the area. Once discovered, these devices will be displayed on the screen and also stored in memory.

Once it is confirmed that the device is a transceiver, the software will store the unique addresses of all the controller modules connected to it, in this case Arduino BT.

The Main Menu displays three options: Options, List of Lamps, and Exit. As shown in Figure 2. The list of lamps show the no of options available for lamps if the user wishes to change the status (ON or OFF) of the lamp then he can do so by sending the message to Arduino board the 2<sup>nd</sup> i.e., the options tells us about the phenomenon of searching the Bluetooth devices and the last is the exit option that tells user about the end of the process.

The below figure 3 will show the block diagram of the flow chart [5].

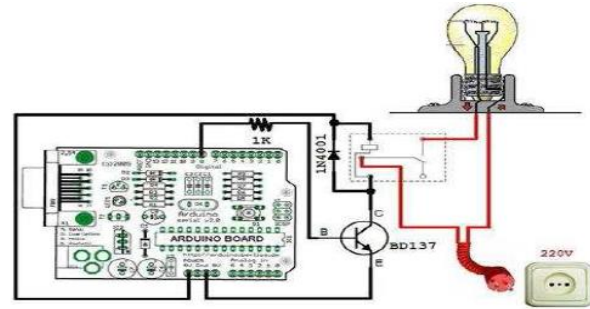


Fig 3: Block Diagram of Smart Home using Bluetooth.

**C. Wi-Fi:** The Wi-Fi technology was developed after the development of the Bluetooth technology and is defined as Is a local area wireless technology that allows an electronic device to exchange data or connect to the internet [6].

As mentioned the proposed smart home system consists of three main modules, the server, the hardware interface module, and the software package. The following figure 4 shows the implemented system layout.

Secure Wi-Fi technology is used by server, and hardware Interface module to communicate with each other. User may use the same technology to login to the server web based application. if server is connected to the internet, so remote users can access server web based application through the internet using compatible web browser.

The implemented smart home system has the capabilities to control the following components in user’s home and monitor the following alarms, like door status, light, video, temperature etc.,

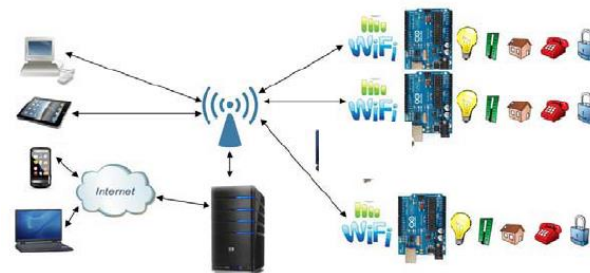


Fig 4: Smart home system using Wi-Fi

**D.ANDROID:** The version of the android mobile operating began with the release of the Android beta in November 2007. The first commercial version, Android 1.0, was launched in September 2008, till date Lollipop (5.0-5.0.2) is released [7].

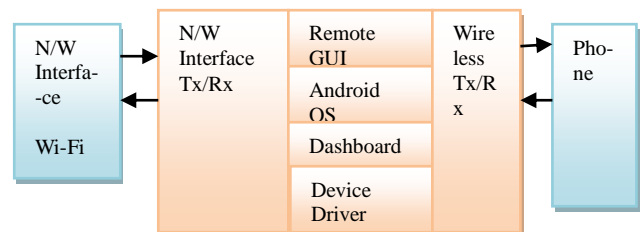


Fig 5: design of Smart home system using android

The local monitoring server sends the home appliances output using graphical user interface. Wi-Fi network is used us the communication between local monitoring server and android device. The architecture of remote view using android module is given in figure 5.

Hence these were the technologies that describe the different platform implementation for the smart home [8].

### III. FUTURE TECHNOLOGY

The future technology that describe the implementation of the smart home may be the use of the cloud computing technology which is the most new and upgraded technology then above mentioned technologies [9].

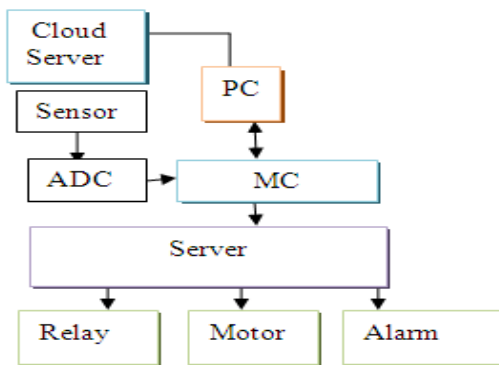


Fig 6: Home Automation Based System through the Cloud Computing.

In the figure6 shows the idea of how the smart home can be implemented. We can see how the Relays, Motors and alarms are connected to driver which in turn is connected to the Microcontroller which is attached to analog to digital converter at one side which is connected to different sensors and on the other side of the MC is connected to the Hardware profiles that can be customized to personal needs and H/W profile is connected to the cloud server through which the devices are controlled using the concept of BIG DATA [10].

The above described methods tell us briefly about the technology that is been used in the controlling of the Home Automation System (HAS) or Smart home system, among them the latest technology that is being in the process of implementation is the HAS using the cloud computing.

### CONCLUSION

Smart home is undeniably a resource which can make home environment completely automated and controlling and monitoring can be done through the mobile or pc's and one can live a more luxurious, upgraded and secure life and this technology may become one of the major field in future.

### ACKNOWLEDGMENT

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