2.1 Overview:

This chapter highlights the developing of the remote control and how affected to progress in communication line.

2.2 Remote Controls Yesterday:

Remote controls have a long history. The original intent for remote controls was for war purposes, in which the ideal scenario was to control attack machinery from a distance. The first form of remote control was invented by Nikola Tesla in 1898, a device called a Tele automaton **(a)** that was used to control a boat from a distance using a telegraph signal.

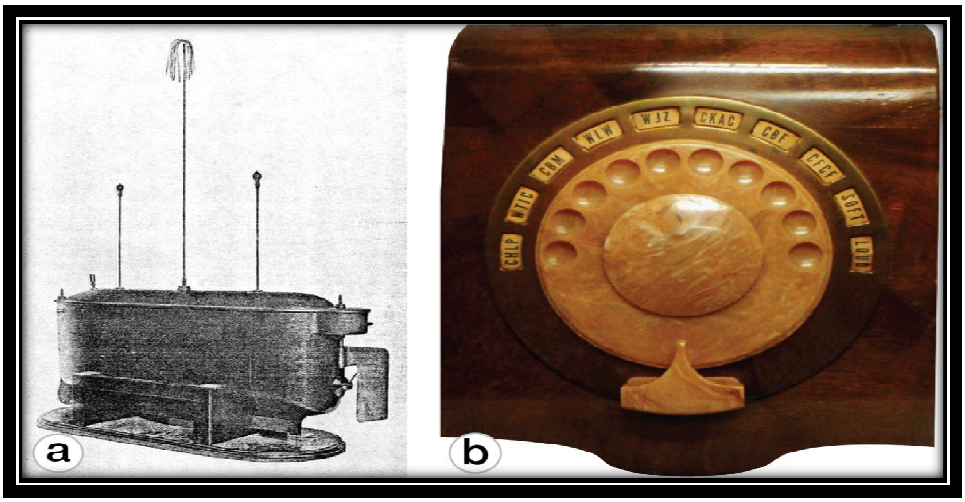

Figure (1.1) first remote control technologies

Figure (2.1) first remote control technologies: (a) Tesla's Teleautomaton (b) Phil co's Mystery Control, the first wireless remote control for a radio.

Everyday routine use of remotes for controlling a home appliance, a radio **(b)**, appeared in 1939.it was known as the mystery control, the controller was a box with a dial that had to be carried with two hands.

The box featured a dial similar to those in old dial telephones, and enabled people to select specific radio stations, switch the input between radio and vinyl discs, and change the volume or mute the radio through RF signals.

In 1950, the Zenith Radio Corporation introduced the first remote control for. Television, “Lazy Bones”, the remote was coupled by a cable to the television, and its controls allowed a person to change channels and turn the TV on or off.

In response, the first universal remote was created in 1985, which could be paired with, and thus control, the premise was that it could be taken from room to room,(Luplow& Taylor, 2012). Eventually, remote controls and devices came equipped with infrared communication, which was an important evolutionary step that untethered the connection between the remote and the appliance. From this moment on, different forms of remote controls proliferated. Complexity is still present today. Dedicated remote controls are still proliferating, in part due to this complexity and also because it is cheaper to manufacture a remote control rather than having dedicated controls on the actual appliance.

In 2002, Brad Myers suggested that mobile devices, rather than dedicated remotes, could be a convenient way to control everyday appliances. His premise was that mobile devices would become commonplace in the future, and that their higher computing capability would allow for mutable graphical user interfaces that could adapt to different contexts.

As device configuration is a potential challenge for users, Nichols et al. later proposed ways in which interfaces could be encoded and transferred between appliances and mobile devices as ad-hoc XML

descriptions , where each is built on standard graphical user interface components (e.g., buttons, checkboxes, drop-down menus).

2.2 Remote Controls Today:

Today, many mobile devices now offer mechanisms to connect and control particular digital appliances or software running on a computer. A popular example is the phone Remote App [(a)], which allows a person to remotely control the Apple iTunes music player or Apple TV.

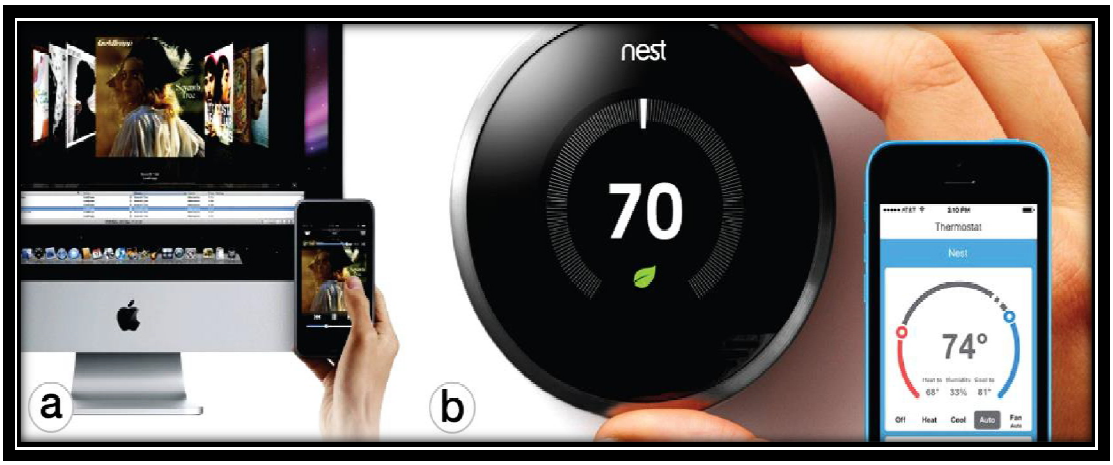

Figure (2)Popular mobile remote applications:

(a) The phone Remote App.

(b) The Nest Thermostat along with its corresponding mobile App.

2.3 Related Work:

In 2011 and Ersgöranson&chrisnilsson ,to link communication with all electronic devices in a home to a Smartphone, concept of a universal remote control for smart phones, replacing the traditional remotes used for every device and thus enabling control of a house from

a central unit, aims at developing a communication station, able to receive signals from a Smartphone, translate them and forward them as recognizable signals for various electronics equipment. designed of remote controls utilize microcontrollers, coupled with infrared light emitting diodes and radio frequency transmitters, for sending out commands to their surrounding equipment. Since remote control is intended to communicate with a smart phone, wireless network communication will also be described.[1]

To control electronic devices from a distance build system allow digital data to be transmitted over a significant distance using a radio link where the input will be infrared (IR) signal. This system will enable IR signal to be used on a device from a distance without any line of sight of the output device, trying to develop a multipurpose remote control. With which we will be able to control many things such as light, fan, TV, Ac and so on. Remote control device won't have any problem regarding wall penetration. It means it can penetrate concrete wall as it will send signal through radio frequency. The range of our remote control will be larger than the usual remote control**,** so developing a remote control for digital data transmission using infrared and radio frequency (wireless communication).[2]

Also design model for displaying notices in colleges on digital notice board by sending messages in form of SMS through mobile; the hardware board contains microcontroller AT89c52 at the heart of the system. The hardware also has a 64K EEPROM chip AT24C64. This EEPROM is used to store the timings and messages to be displayed. Hardware also contains a real time clock DS1307 to maintain track of time. A 16x2 Character LCD display is attached to microcontroller for display. Microcontroller coding will be done using Embedded C and

Kiel. Multiple Users are authorized to update notices on the digital notice board by providing them password. We can use a PC with an administrator for monitoring the system. This thesis done by David Ledo November, 2014.[3]

Finally wireless control of electrical appliances based on GSM appears in design, using their cellular phone. It shows the construction and working of the device to wirelessly control the home appliances based on GSM networking and 8051 microcontroller. Initially an authenticated signal is sent from the user's cellular phone via Global System for Mobile Communication (GSM) network to the phone which is fixed to the equipment. This signal or code consists of the information about the function or action to be taken place i.e. what appliance should be turned off or turned on. The receiver phone receives the DTMF signal or a SMS message that is send from the user's phone and then sends it to the DTMF decoder or the GSM modem which in turn sends the output digital signal to the microcontroller. Then the microcontroller, based on the received signal, controls the different relays connected through ULN2003 (Darlington transistor) and triggers the required appliance.[4]

Also in December 2014 paper has published deals with the design of remote control system based on Short Message Service (SMS) for displaying (LCD's). The control center is supplied with Global System for Mobile communications (GSM) for SMS transmission and reception. The GSM receiver is connected to a microcontroller which decodes the messages and accordingly sends commands. The microcontroller issues orders to display advertisements as required by the message.[5]