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STUDY ON SMART TV USING RASPBERRY – PI

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Abstract- Television's are getting as popular as a mobile phone nowadays. Almost every house has atleast one television available. But their television might not be a smart one since a smart TV costs very high when compared to a normal one. TV's nowadays are not just limited to watch the regular satellite broadcast shows. You can browse the internet , watch videos on you tube and much more. Our project involves the use of the Raspberry pi to convert a normal TV into a smarter one. A raspberry pi is connected to a normal TV supporting the HDMI cable , which make it smarter than any current smart TV's. A small hack of connecting the Smart Phone to the TV can control the TV wirelessly. What we need to do is just to connect the smart phone to the same network on which the pi is connected and to connect the phone with the pi using VNC viewer in the phone to use the pi OS in the phone.

I. INTRODUCTION

The Raspberry Pi is a series of small single board computers developed in the United Kingdom. It contains all the elements used to run a basic computer. It is a credit card sized computer that plugs into yout TV and a keyboard , which can be used for many of the things that your average deskpot does spreedsheets , word processing , game and it also plays high – definition video. The Raspberry Pi charitable foundation wants to see the device being used by kids all over the world to learn programming and electronics. The Raspberry Pi charitable foundation is working with partners to get software material developed , as well as with the open source community.

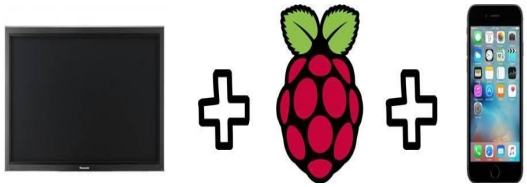
This Pi contains all the basic things for a normal person who can not afford the computer. The Pi after connecting with the TV becomes much smarter and the user can access both TV and the Smart computer at the same time. The Smart TV can be able to find the room temperature and it also detects the intensity of light. The room temperature and light intensity readings are converted from digital to analog signals and it displays on the TV. The temperature sensor ranges from 0 to 150^0 C and the light signals ranges till the 2 to the power of the number of pins in the Pi. The WiFi module is inbuilt in the Pi which helps the Pi to connect to the phone. After connecting the TV can be controlled from the phone using the WiFi or the Bluetooth module.

II. TECHNICAL SPECIFICATION

a) Broadcom BCM2837 ARMv8 64
b) processor
c) 1GB RAM
d) Video core 4 GPU supports up to 1920x1200 resolution.
e) MicroSD card slot, bluetooth 4.1, 4 USB ports , 40 GPIO Pins ,3.5mm audio jack
f) 10/100Mbps Ethernet port, display and Camera Interface

III. DIAGRAM REPRESENTATION

The Pi is connected to the TV and the TV starts working as a smart one. Then the Mobile will be configured with the Pi OS and the connection will be done either by WiFi or the Bluetooth
or it can be connected by the application known as VNC in order to run it from the mobile.



IV. OS INSTALLATION OF PI

a) First take the newly ordered raspberry Pi and connect it to a power source.
b) Now take the SD card and using a USB card reader connect it to your Laptop.
c) Download the OS file from the Raspberry website.
d) Using an image burning tool like etcher , burn the downloaded image to your SD card.
e) After the process completes check if all the files are there on the SD card.

V. EXISTING

Raspberry Pi is used as a mini computer outside the India. It is not much used in India as the people are

unaware of it. It exists only till the computer purposes and not yet used as other smart working. It is safe and secure and can be used as many other things like finding the current room temperature and the intensity of light and much more. It also provides WiFi connection to everyone. Since pi is the small device and limited resources its not for big companies, so more emphasis should be given on much more powerful device which can perform the operation of pi more better in large Wi-Fi connection.

CONCLUSION

We were able to follow our planned design and successfully implemented the Smart TV Using Raspberry Pi which can be used as a TV and a smart computer at the same time. The Smart TV can be successfully controlled by the mobile and the problems are solved. I hope that it's a good development in research since it helps in solving people real life problem of purchasing a Smart TV which everyone can't afford and it also increases many facilities which normal computer don't have.

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