

Wireless Printing Using Iot

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Abstract -- Internet of Things (IoT) is propagating and blooming technology, in the present years. IoT is the collection of the sensor data through embedded system and this embedded system uploads the data on internet. Fuelled by machine-to-machine (M2M) communications, the Internet of Things (IoT) is all about connecting a wide range of internet-enabled devices – from cars, lighting, smart meters and more – that generate actionable data. In the print industry, proactive maintenance and support is nothing new. Today, many smart printers and MFPs (multifunction peripherals) are equipped with embedded technology to enable remote management. The project uses the Raspberry pi board along with the Raspbian OS using the CUPS printing server software. This project will be very helpful to solve the day to day problems in printing and sharing hard copies data from person to person and place to place.

Index Terms: Raspberry Pi, Internet of Things (IoT), Relay, CPU.

I. INTRODUCTION

Technology has been taking quiet a remarkable growth since the ages. With the greatest minds and the innovative solutions addressing the day to day problems, technology is at a rapid growth. Automation remains the foremost technology which serves at easing physical work of the human kind. Internet, on the other hand, made it a perfect and simpler platform to control and coordinate the automation accessories, though the one in charge of it is not at the actual working site. This duo of automation and internet can build a better technological future and bring upon newer methodologies to implement, where in the existing methods can be improved to a next level. This laid the foundation to the Internet of Things (IoT), which is taking over the traditional methodologies of managing, controlling and coordinating the devices.

The Internet of Things can be used in collecting the sensor data from various sensor active sites or industries and uploading the data into the cloud network, thereby enabling the data to be accessed from nooks and corners of the world.

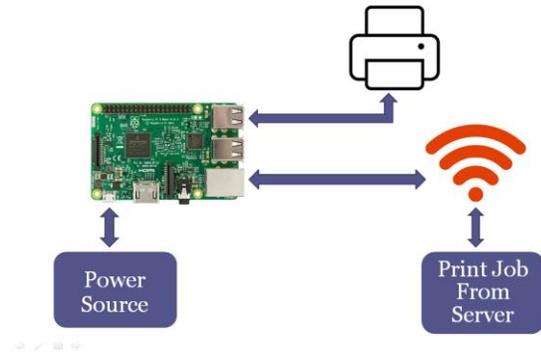
Internet of Things is not meant only for accessing the data but also establishing a full duplex communication between the active device or sensor and the person wishing to control and look into the device. By establishing this connection orientation, it becomes easy for the person to control the device possibly from any part of the globe, henceforth reducing human intervention at the site of operation and also increasing ease of access which leads to a reduced occurrence of accidents on site.

The present project utilizes the stream of IoT to control and manage printing service at a location from anywhere in the world through internet. The idea of the project came up to address a common problem faced in the college premises whenever there is a need to circulate information to the different departments of the campus. Circulation of information and notices required a lot of human effort through sending the notices by hand to each and every department. As the campus grows, the work gets even harder. With this project implemented, a central system can be established to send information to the all the departments simultaneously without any human intervention.

II. PROPOSED PROJECT

The aim of the project is to enable an efficient way of printing notices and data right away to the required

place of need using the internet that is the Internet of Things (IoT). The project uses a Raspberry Pi 3 along with a printer with the capability of connecting to the network.



The Raspberry pi is initialized and synchronized with the printing system so as to act like a mini system to control the printer from any possibly anywhere in the world with the help of any smart device or tool.

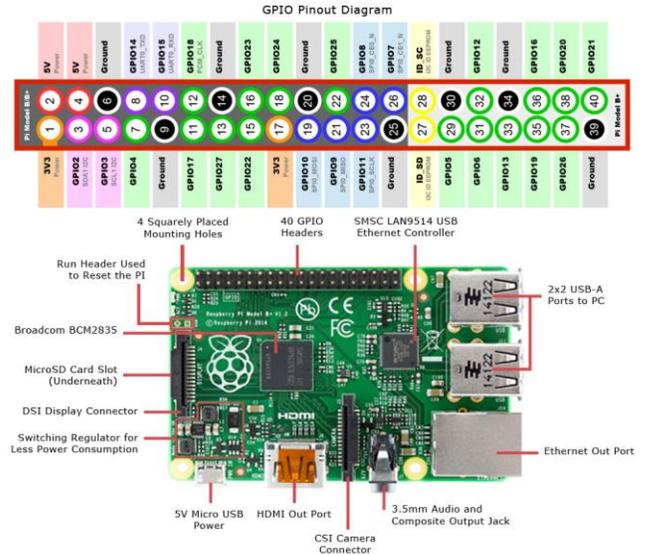
The system enables ease of access to information that is to be immediately reached as well because we live in an era where internet is reaching the destination faster than a clock ticking for a second. So this enables sharing data easier and cheaper.

III. IMPLEMENTATION

3.1 *Raspberry Pi 3*: Raspberry Pi is a mini computer developed by the Raspberry Pi foundation of the United Kingdom. The device is basically innovated to provide best teaching solutions to the students of the UK.



The Raspberry Pi 3 uses a Broadcom BCM2835 processor which is developed as the System on Chip (SoC) Technology. There have been various versions of the Raspberry Pi hardware advancing itself for every succeeding version.



The latest version, Raspbian 3 has an internal WiFi and Bluetooth modules in built in the system which enables the connectivity between system and networks easier and smarter. The Raspberry Pi 3 has 4 USB 2.0 Ports for connecting with the external peripherals, 40 GPIOs, a LAN Port and various other peripherals.

The Raspberry Pi requires an Operating System (OS) to configure and control the hardware equipment built on board. We use a Raspbian OS for this purpose. There are several flavours of Raspbian family of which Jessie is the most famous and commonly used flavour.

3.2 **Printer**: A general purpose printer with connectivity facility and available driver packages is used for the project.



Once the printer is properly set up and initialized with the Raspberry pi, there is no requirement of any other hardware peripherals to print from anywhere.

3.1 CUPS: The Common Unix Printing System is a pre developed platform through which we can enable a printer to be discoverable to the devices in the network to access and perform print jobs.

The CUPS enables an easy discovery of the printers in the network and establishes perfect connection between the controller of the device and the printer through Internet.

IV. RESULT

When the Raspberry Pi is initialized and installed with the package of CUPS, the IP address is generated for the CUPS to establish. When the CUPS is initialized and the printer to be used is added into the printing system, the system recognizes the printer and accesses it on commands from the user.

The output of the project should be something like the video shown in the link:

<https://youtu.be/Jkq28NMxLDE>

V. CONCLUSION

In the present world with incredibly timeless people, the need to reach out to devices, though someone is not physically present at the point of application, so as to accomplish the task comes into the picture. The printing system allows us to solve some of the problems faced by eliminating the physical transportation of notices to different departments in a University to almost replacing a traditional FAX mechanism of transferring data over a large distance, in a cheaper, better and most efficient way of doing the print job. The project can be used for indicating an emergency and perhaps may send a print for help from the other side with an extension of a buzzer as an alarm mechanism.

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