MINOR PROJECT

iPrint

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ABSTRACT

The title of our project is *iPrint.* It is designed as a global print service to provide the service of 'Anywhere Printing' through which you can print from any device at any given location from a printer placed somewhere else. We have used Sub Process which is basically a form of threading which results in formation of user and client threads. We have designed an android based application for smartphones and a web application for the desktop so as to allow users to use this model via the computers as well as smartphones. We have a login feature in App as well as Desktop version. We have attached a password and id with every user and allowed user to attach a printer to his own id, this has been done considering the chances of misuse of this application.

OBJECTIVE

Main objectives of our projects include:

- Connecting printers and devices globally through internet based on the concept of "Internet of Things".
- Main objective is to allow the user to transfer file and get file printed without being physically present close to the printer himself.
- Allowing users to connect to the printer placed anywhere around the globe through internet and print through them.

- Having an android based application allows users to use the model through there smartphones.
- Allowing transfer of files via internet for the purpose of printing.
- We have attached an email id with printer and a password for security purpose.
- We have used MongoDB as our database to keep record of all registered users for better functioning.

DIVISION OF WORK

MOHD. SADIQ:

- Socket Programming
- File/Pdf Transfer
- Android App

HARSH GOYAL:

- Python Flask Web Application
- Raspberry Pi Setup OS
- Setup CUPS and pycups module
- Write the Python Script to make HTTP request to server
- Print the Data received.

EKLAVYA HINGORANI:

- MongoDB database setup and connectivity to flask application.
- Web front end designing
- Object oriented python classes.
- Report

BACKGROUND STUDY AND FINDING

Background studies required to be done for this project:

- First and foremost the concept of “Internet Of Things”, was studied.
- UNIX Printing Module CUPS was studied in detail. Pycups, A Python Library to use CUPS with python was also used to implement printing through python scripts
- Python programming.
- Socket programming was another concept that was required to be looked upon.
- Use and coding of ‘Raspberry Pi’ was done.
- Use of MongoDB so as to use it as the database to keep records of users was done.
- Android App designing.
- File transfer through socket programming.

DESIGNING

WEB INTERFACE

A Flask based Web Application was developed which is used to interact between all the devices and also controls the data flow of the project.

We implemented RESTFUL API's for making HTTP Requests between Web Server and Raspberry Pi's as well as Users(Clients).Its main usage is to provide a platform that can be accessed by all sort of Application/programs.(Cross Platform Application)

The API's were used to code various functions and responses to requests which were required to support the application.

RASPBERRY PI SETUP

Initially all the Hardware requirements were fulfilled starting with arranging Raspberry Pi 2,Keyboard,Mouse, Wifi Dongle ,Display monitor for setup and most importantly a Printer.

We used the Raspbian OS that we installed in the Raspberry Pi and then installed all the hardware and all the setup files were required including python.

Then to provide Printing support to Raspberry Pi, CUPS unix module was installed on the device.

The printer was then connected and added to CUPS admin.

Pycups for python was setup and the required python script was then coded to allow wireless printing.

TESTING

We tested all the modules separately. We tested all the modules one by one and then finally tested the whole application as a whole.

REFERENCES

- TutorialsPoint
- Stackoverflow
- Cups documentation
- Pycups documentation
- Android studio documentation