Smart File System

Shubham S. Ghanate
Dept of Computer Engineering
A .G. Patil Institute of Technology, Solapur, Maharashtra, India

Abstract- *Smart File System is an IOT (Internet of Things) based project which helps to find a hardcopy of a file by using App or Website as per the requirement of customer. This system will help candidates to save their time and efforts without spending a lots of time for searching a particular hardcopy of file which is stored in unstructured format. At Home, it is difficult to find an important documents files in cupboard, in this generation we still finding a file or document manually therefore we need to overcome such task by implementing this project. This project is completely based on hotspot system in which without Internet we should find a particular file.The main goal of this project is to find the files, documents placed among large quantity with unstructured manner. This is done by using ESP12F chip. Finding a particular file among the storage is a bit difficult task and leads to wastage of time also. This project is solution to this problem which is based on IOT and aimed at developing a kit which detects the objects by sound and light using Wi-Fi chip. Which means, this application will provide a light blink and buzzer sound whenever we need to search a specific hard copy of file placed among large quantity. A security point of view only authorized person will be able to perform searching throw his/her mobile phone using this App having a confidential password. Finding an object from structured format is not a big challenge, when we deal with unstructured format we face many problems.*

Keywords- Android Studio, ESP12F, Hotspot, IOT, Searching.

I. INTRODUCTION

Android is open to everyone: developers, designers and device makers. That means more people can experiment, imagine and create things the world has never seen. The best achievement as well as future example of integrated electronics in technical field is Smart Phone. Today most of the smart phone uses Android operating system. Android powers hundreds of millions of mobile devices in more than 190 countries around the world. Android Studio is the official IDE from Google for developing android applications for android devices. It consists of all the API required to create an app. It has emulators on which you can test the developed app.

Finding a particular file from unstructured format of multiple files is difficult.

Fig. 1. Files

A Smart File System is capable of locating an object of interest in a 16 meters range without internet.

As per the offices timing the ESP12F node goes into sleep mode and restart again. In this way we can avoid the unnecessary wastage of battery. In many offices such as Construction offices, CA offices, Bank, Hospitals etc., maintain hardcopies of files to make this searching process easy Smart File System project will help.This system is flexible because of searching possible from both the way Mobile phones as well as Router.

II. METHODOLOGY

1) Hotspot-

A **hotspot** is a physical location where people may obtain Internet access, typically using Wi-Fi technology, via a wireless local-area network (WLAN) using a router connected to an Internet service provider.Public access wireless local area networks (LANs) were first proposed by Henrik Sjödin at the NetWorld+Interop conference in The Moscone Center in San Francisco in August 1993.[28] Sjödin did not use the term "hotspot" butreferred to publicly accessible wireless LANs. Public hotspots may be created

Fig. 2.Mobile Hotspot

by a business for use by customers, such as coffee shops or hotels. Public hotspots are typically created from wireless access points configured to provide Internet access, Controlled to somedegree by the venue. A private hotspot, often called tethering, may be configured on a smartphone or tablet that has a network data plan, to allow Internet Access to other devices via Bluetooth pairing.

2) Router-

A **router** is a networking device that forwards data packets between networks. Not every device connected to your network is one you want using up your bandwidth. If you find yourself in a situation where you want to deny access of particular IP or just a random unknown device, you can block them using the MAC Address Filter. The Media Access Control (MAC) Filter can be used to create a list of allowed devices or a list of blocked devices. First things first, you will need to know the MAC address of the devices you want to allow or block. Each ESP12F node having a unique IP and MAC address throw which blocking and unblocking task is easily get perform.

Fig. 3. Router

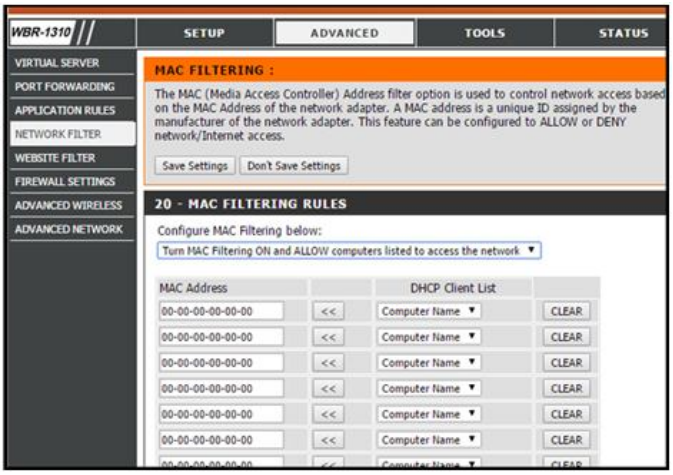

Fig. 4. Router Based Website

3) ESP12F-

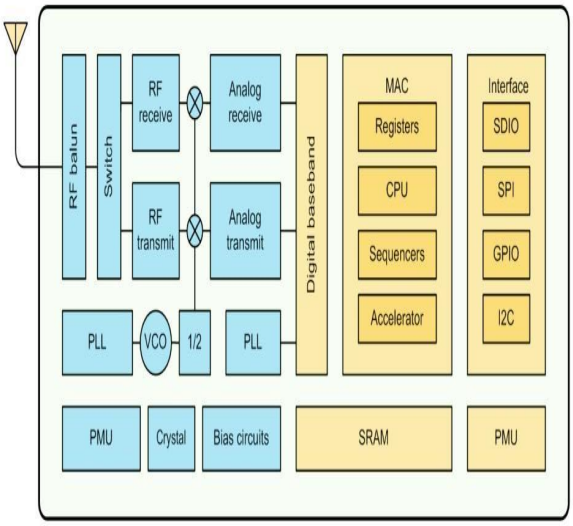

Fig. 5. Architecture of Tag

Table 1. Dimension of ESP-12F Wi-Fi Module

Length	Width	Height	PAD Size(Bottom)	Pin Pitch
16mm	24mm	3 mm	0.9 mm x 1.7 mm	2mm

Key Features-

1. 802.11 b/g/n
2. Integrated low power 32-bit MCU
3. Integrated 10-bit ADC

4. Integrated TCP/IP protocol stack
5. Integrated TR switch, balun, LNA, power amplifier and matching network
6. Integrated PLL, regulators, and power management units
7. Supports antenna diversity
8. Wi-Fi 2.4 GHz, support WPA/WPA2
9. Support STA/AP/STA+AP operation modes
10. Support Smart Link Function for both Android and iOS devices Fig. 6. ESP12F Tag

4) Hardware Components-

First component is a **Buzzer or Beeper** is an audio signalling device, which may be mechanical, Electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm device, timers, and confirmation of user input such as a mouse click or keystroke.

- Specification of Buzzer : 5V-Blac
- Operating Voltage : 3V-5V
- Package includes : 1 x 5V buzzer

Fig. 7. Buzzer

Second component is a **LED** having lighting promises lower costs because it delivers a longer operational life and higher energy savings compared to alternative lighting options. When it is connected to the network, such as through a wireless or power-over-Ethernet connection, users also gain unprecedented control, through automated and remote access, to dynamically adjust the brightness, on-off patterns, and/or colour of each IPaddressable lamp.

- Forward Current (IF): 30mA
- Forward Voltage (VF): 1.8V to 2.4V
- Reverse Voltage: 5VFig. 8. LED
- Operating Temperature: -30℃ to +85℃

Third component is a Rechargeable Battery which is also called as storage battery or secondary cell is a type of electrical battery which can be charged, discharged into a load and recharged many times.

Automatically a recharge beep will generated when it's power getting low. By adding C language code we achieve this operation.

Fig. 9. Rechargeable Battery

5) Flow Diagram-

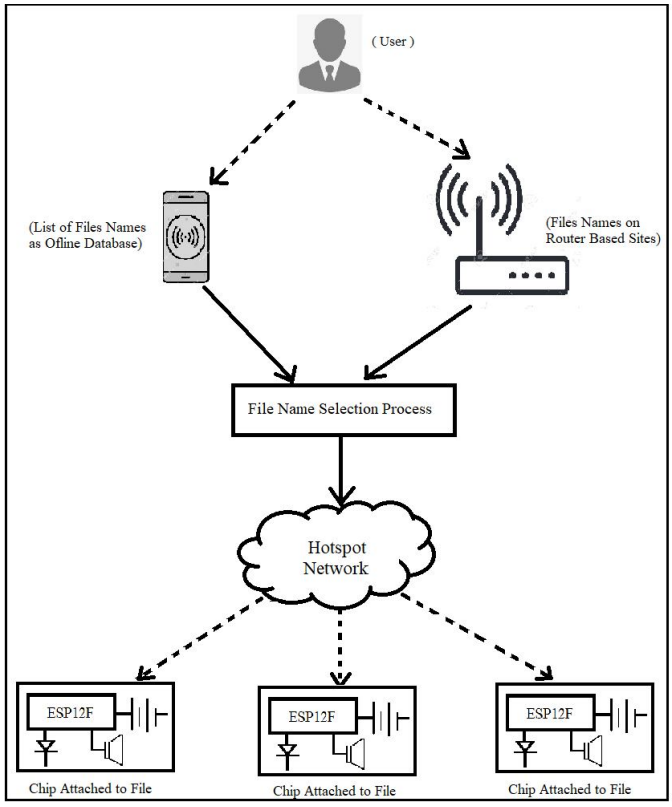

Fig. 10. Flow Diagram

The size and weight of tag is also small with high sensitivity. The searching is possible from both the way that is from the mobile hotspot as well as router. The transmitter is nothing but mobile phone and router and ESP12F chip is act like a receiver in this project. Now a days each and every offices having an internet router by using of this router searching process will be completed. ESP12F node is attached with the rechargeable battery, LED and buzzer. Wi-Fi network is work as intermediate between Wi-Fi chip and user. Wi-Fi is a universal wireless networking technology that utilizes radio frequencies to transfer data. Wi-Fi allows high-speed Internet connections without the use of cables.The term Wi-Fi is a contraction of "wireless fidelity" and commonly used to refer

to wireless networking technology. The Wi-Fi Alliance claims rights in its uses as a certification mark for equipment certified to 802.11x standards.

III. RESULT

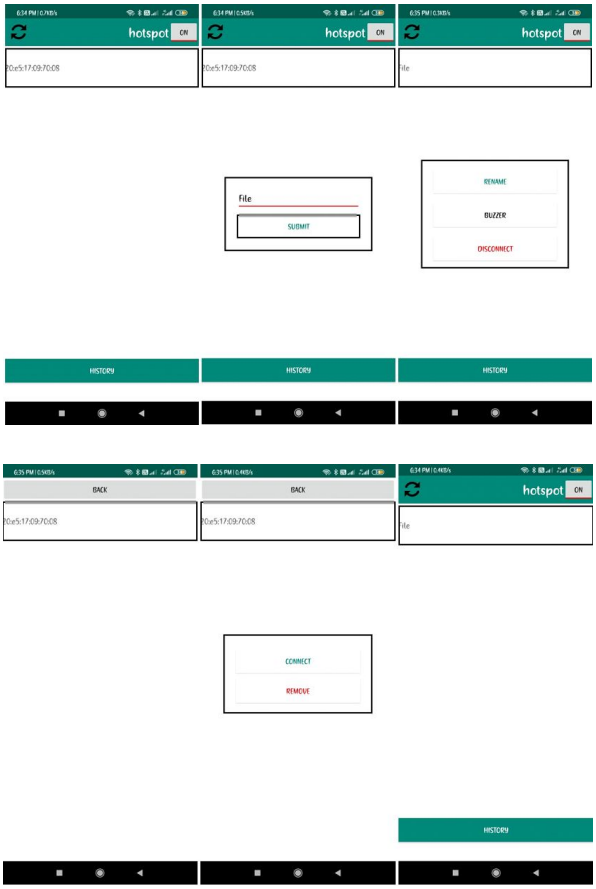

Fig. 11. Screenshots

The code of thisSmart File System android app is return in android studio by using this app multiple operations can be executed. As per the mobile hotspot limitations maximum ten to fifteen IP addresses will be able to connect mobile hotspot at a time.It means that maximum ten to fifteen files we search at once. Currently searching file names are visible on the main frame and others names are available in the history as well as we can remove the file name by using remove button. In case we have to change the name of the file, the rename button was addedthrow which we can easily change the name of the file from the list of file names. A buzzer button is for flashing the light and sound of the searching file.

IV. CONCLUSION

This project is completely based on Wi-Fi network which is one of the best network for data transmission/communication. Smart File System is purely implemented for the offices for making searching process easy and avoid wastage of time. For making offices smart, Smart File system will perform an important role. Android app is developed in android studio which is free of cost and the router which is generally available in offices.

V. ACKNOWLEDGMENT

The author would like to thank Professor S. V. Gajul, Department of Computer Engineering, A. G. Patil Institute of Technology, Solapur, for her continuous help and suggestions to improve the eminence of this paper.

REFERENCES

[1] https://www.elecrow.com/download/ESP-12F.pdf
[2] http://www.dolphinlabs.in/career.php
[3] Hung Cheng Chen, (Us); Keng Hao Chang(Us), ”Object Finder”, Patent Application Publication, March 14 2013, Publication No. Us 20130063261 A1
[4] https://www.instructables.com/id/Arduino-Sensor-With-LED-and-Buzzer/
[5] https://vedblogs.wordpress.com/2015/10/26/project-1-blinking-of-led-with-simultaneous-beep-of-buzzer/
[6] https://www.tutorialspoint.com/android/android_wi_fi.htm
[7] https://stackoverflow.com/questions/6394599/android-turn-on-off-wifi-hotspot-programmatically
[8] https://www.youtube.com/watch?v=QuYboUuFTqM
[9] https://www.geeksforgeeks.org/mac-filtering-in-computer-network/
[10] https://www.tutorialspoint.com/wi-fi/wifi_summary.htm