MINI PROJECT -2020

Computer Science Department

B.tech 3rd year

Project Name- File Transfer App

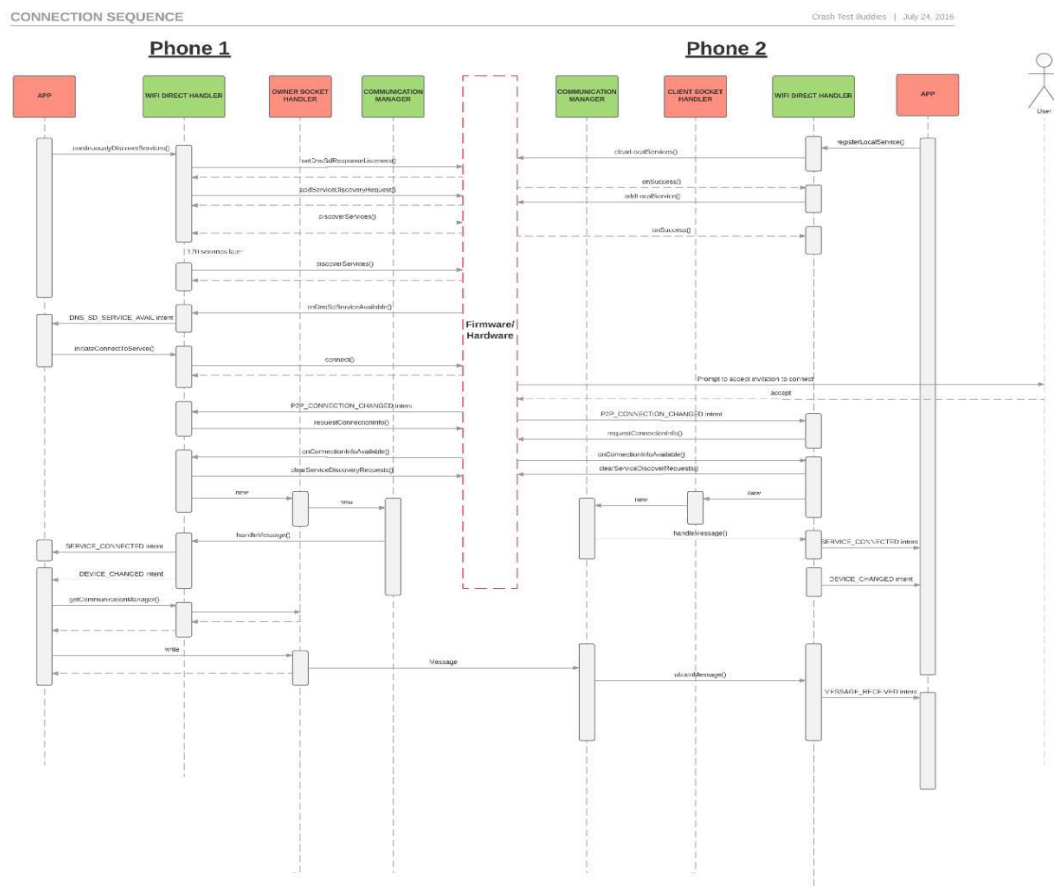**Mentor**- Neeraj khanna sir

Members - Prachi Bansal, Mani Bansal, Neha Adnekar,

Vivek Goyal, Jitendra Singh

File Transferring App

Project idea -To develop an Android application that will transfer data from one device to another without access to the internet (using Wi-Fi Direct).

Synopsis -

How it works ?

1. The app uses WIFI P2P API to establish connection.
2. After connection establishment, a socket connection is established between two devices.
3. The groupOwner acts as Server and other acts as client.
4. Data is sent through streams.

Technical Requirements

- Using Wi-Fi direct requires a phone or tablet running Android 4.0 later.

- You also need to make sure the specific device supports Wi-Fi Direct.
- We use Android studio environment to develop app.

Feature: For secure connection we use QRCode .

The lead device:

1.Create a hotspot   2. Accept Socket connection   3. Create QRCode

The other device:

1. Scan QRCode   2. Connects to hotspot   3. Connect as Client

Methodology - Java Language

- Create user interface (UI)

- Enable & Disable Wi-Fi Programmatically
  Import WifiManager
  Create object of wifiManager
  Check current status- wifiManager.isWifiEnabled(); // return boolean
  Enabled / Disabled- wifiManager.setWifiEnabled(boolean);

- Creating a Broadcast Receiver for Wi-Fi P2P Intents

  WIFI_P2P_STATE_CHANGED_ACTION
  (Indicate whether Wi-Fi p2p is enabled)

  WIFI_P2P_PEERS_CHANGED_ACTION
  (Indicate that the available peer list has changed)

WIFI_P2P_CONNECTION_CHANGED_ACTION
(Indicate the state of WI-FI P2P connectivity has changed)

WIFI_P2P_THIS_DEVICE_CHANGED_ACTION
(Indicate this device's configuration detail have changed)

- Discovering peers for Wi-Fi direct
  Override two methods for discoveryPeers-
  1.onSuccess()   2-onFailure()

  Create ListView to contain device name
  Create String Array to show device name
  Create Array to connect a device

- Connect to a Peer for Wi-Fi direct
  Create object of WIFIP2PDevice using device Array
  Create object of groupOwnerAddress
  Check connection status of host & Client

- Wi-Fi Direct Data Transfer (Server Thread)
- Wi-Fi Direct Data Transfer (Send _ Receive)

Comparison of Wireless Technologies -
➢ WiFi Direct is a better option than Bluetooth & NFC

1. NFC
Advantages:
- Simple operation to connect with others and transfer files.
Disadvantages:
- A number of devices don't support NFC.
- Its range is very short (<0.1m).

2. Bluetooth
Advantages:
- Bluetooth is a traditional data transferring way.
- Bluetooth APIs are easy to follow and implement.
Disadvantages:
- Its transmission speed is slow.
- Signal coverage up to 20 meters at most.

3. Wi-Fi Direct
Advantages:
- It has a faster transfer speed than others.
- Wi-Fi Direct signal can cover a wider range (200m) than Bluetooth.
- It supports WPA2 encryption.
- It is a software-based feature.
- Its transmission processes are flexible and controllable.

Disadvantages:
- It require Android 4.0 (API level 14) or later devices.
- It consume more battery than Bluetooth.

Reason for selecting this topic -
- In business, file sharing is a major business application used by millions of companies and individual users across the world.
- With file sharing app, employee effort and time–become efficiently utilized.
- File sharing apps hastened the nature of work collaboration.

Contribution of the File transfer app -
- Cyber Security field- File sharing apps are a common tool used in cyber attacks, both by professional hackers and ordinary individuals.
- Education field- Study stuff & business documents instantly shared.
- Government- Government use file sharing to share the important information on websites with limited rights.
- IT Industries-With file sharing app, employee effort and time–become efficiently utilized.

Future Scope -
- It can extend into a cloud-based productivity platform like *Google Drive and Dropbox.*
- Transferring large files quicker by seeding process as seen in *Spotify and BitTorrent.*
- It can works as a built-in capability of an OS to share files among computers with the same OS.
- It can extend into a centralized File system like *IBM Aspera.*

Conclusion -

With its simple setup, longer range and much higher transfer speeds, WiFi Direct is a better option than Bluetooth & NFC for wireless file transfers between two devices.This project is developed using java & android platform.It indubitably meet to our expectation of file sharing.