



# SpotHOT

~ HotSpot Management Application

*Anjali Singh(MT20049)*

*Abhinav Saurabh (MT20127)*

*Khushboo Bajaj(MT20060)*

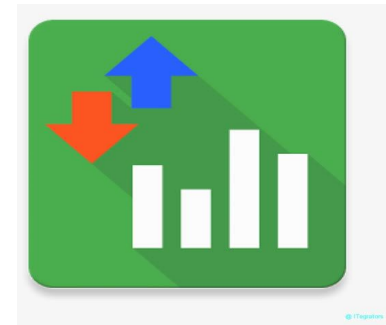
*Chetan Saraf(MT20109)*

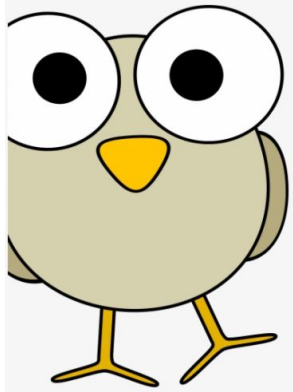
*Sudha Kumari(MT20098)*

# Motivation ~

- Nowadays, mobile data charge becomes economical over the world.
- The inbuilt hotspots are some limitations that don't meet the standards and needs of users.
- Problem : **Losing too much mobile data when you share your mobile Data.**
- **Solution ??**
  - **Security** : Secure the wifi hotspot using a **WPA2\_PSK password** protection.
  - If your password is too easy to crack (e.g.- 12345678) : **Limit the Connected Clients**
  - If connected user misusing your Mobile Data

**Auto off WiFi HotSpot When Reach Time limit or Data limit**





Do you want to share your mobile data connection  
with limits?



# SpotHOT



Idea !!

# App Description ~



# SpotHOT

If you are looking for sharing your mobile data connection with a friend or family, or if you are facing problems of **losing too much mobile data** when you share, then **SpotHot** is the app for you. SpotHot is a customised application created specifically in order to provide hotspot users to have **seamless experience with the sharing process**. It has **quick methods to setup wifi hotspot, Limit the sharing capabilities** and several other features along with a **user interface which can be understood even by a layman**.

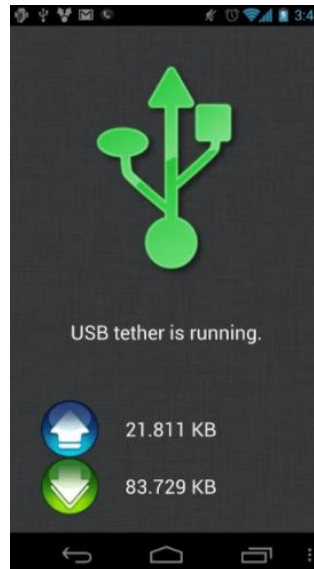
# What is available in the market?

- **Few Examples:** PdaNet +, FoxFi, Wi-Fi Finder, Osmino: Share Wi-Fi Free, ClockworkMod Tether, Wi-Fi Map, Free Wi-Fi Hotspot Portable, Wi-Fi Tether Router, Portable Wi-Fi Hotspot.
- The features were **pretty basic** only.
- The most liked thing by users about these app: **Sharing the Internet via USB and Bluetooth.**

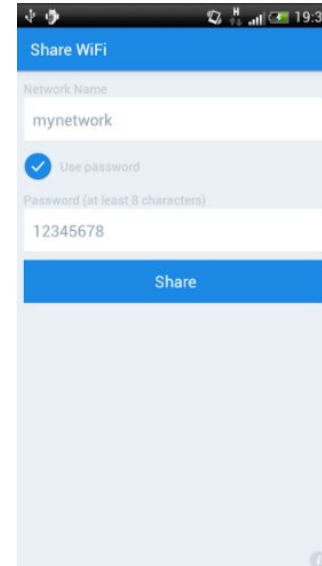
## FoxFi



## ClockWorkMod Tether



## Osmino: Share Wifi Free



## PdaNet+



# Features Implemented So Far...

## Previously Proposed Features

1. Bandwidth Limitation
2. Mac address blocker
3. Data Usage Analysis
4. Limit Data Usage
5. Website blocker
6. Hotspot Timeout
7. Specific Website Access

## Features Implemented from previously proposed features

1. Bandwidth Limitation
2. Mac address blocker
- 3. Data Usage Analysis**
- 4. Limit Data Usage**
5. Website blocker
- 6. Hotspot Timeout**
7. Specific Website Access

## Extended Features....

Bandwidth Limitation

Data Usage Analysis

Limit Data Usage

HoTSpOT TimeOuT

Mac Address Blocker

Website Blocker

Specific Website Access

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WIFI HOTSPOT Configuration

Data Usage Analysis

Limit Data Usage

HoTSpOT TimeOuT

Deactivated on Specific Battery %

Deactivated when Connected Clients are 0

Activate SPOTHOT

# Features Implemented ~

## Hotspot Configuration :

Hotspot configuration can be done by providing different SSIDs to the hotspot. For configuring the passwords, we have provided WPA2psk particular configuration can be made as default network.

## Quick Methods to Setup Hotspot:

We have given not only basic functions of switching on and off of hotspot, but has also given features for automatic starting of hotspot on startup etc. Along with this, we have an option of providing a time gap after which our hotspot will start after our phone restarts.





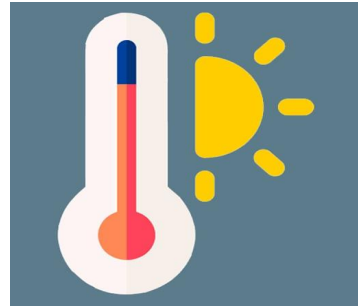
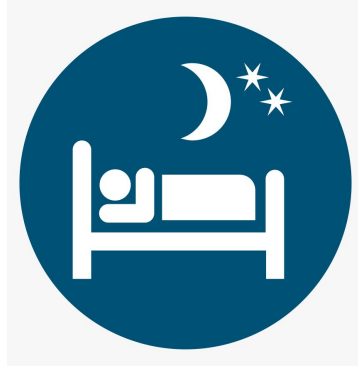
# Features Implemented ~

## HotSpot Timeout:

As a hotspot provider, I may want to give data only for a specific amount of time. This feature is useful in this use case. I can feed in the time after which my hotspot would automatically be switched off.

## Data Usage:

One of the most important requirement for a hotspot provider is to keep track of the data that he is providing. For this purpose, we have provided an option to see the data used till now. Also this data usage can be reset if the user wants.



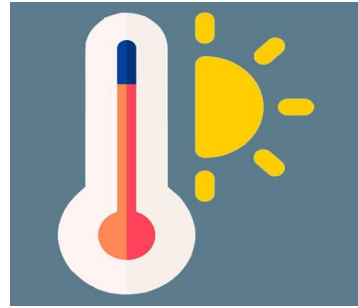
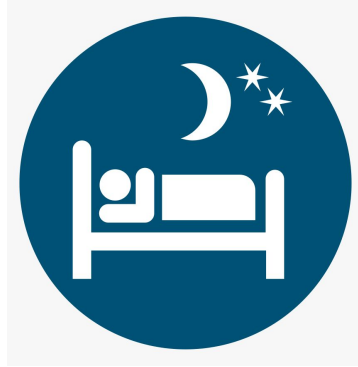
# Features Implemented ~

## Limit Data usage:

Since we have the option of keeping track of data used,we can schedule the hotspot turn off depending upon the amount of data used.So that,my data does not fall below a limit.

**Battery Level:**Not only the data, but if the hotspot provider wants to delimit the sharing capabilities depending upon the the battery,then this feature can be used

**Deactivate on idle:**In order to save the energy of the device,and hence the battery,if the user wants to deactivate the hotspot,he can choose the option of deactivate on idle



# Findings & Challenges ~

1. Most of the methods and classes are deprecated in android after API level 22.
  - wifimanager
2. Some of the features might not be implemented, due to lack of feasibility.
  - Website blocker
3. Some features require root access.
  - MAC address blocker
4. The wifimanager class which is mainly used for wifi connectivity does not support many functionalities now in newer android versions. For example the function `getConfiguredNetworks()` is deprecated and no longer be used for providing functionalities to newer versions of android.
5. For getting information like MAC,IP about the connected clients we need to read the file `/proc/net/arp` but this is restricted in newer versions of android.

# Challenges ~

- We initially had a notion that the **Fast Android Networking** library would be useful but after studying it, we realised that it would not help in getting our task done.
- `getScanResults()` which did not work after Android 8

# The Design Hierarchy

## Wifi HotSpot Configuration

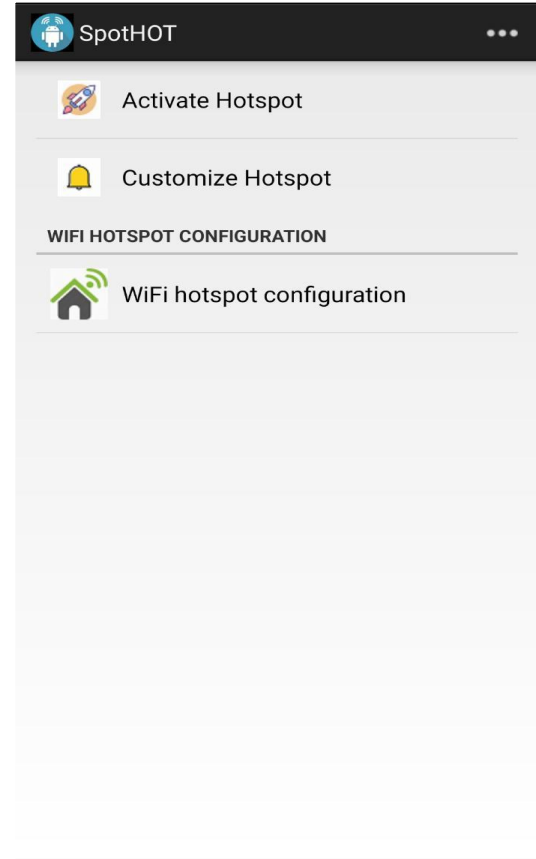
- a. Add wifi hotspot
- b. Modify the wifi hotspot
- c. Remove the selected wifi hotspot configuration.

## Activate Hotspot

- a. Activate the service on device startup
- b. Delay after startup
- c. Service in background after start tethering
- d. Force to activate wifi tethering after startup

## Customize Hotspot

- a. HotSpot Timeout → Scheduler to TURN ON & TURN OFF HOTSPOT
- b. Battery level → Set Battery Level to Deactivate HOTSPOT
- c. Deactivate on idle
  - Connected Clients 0
  - Deactivate the HOTSPOT after "Specific Amount of time"
- d. Data Usage Analysis



# The Design Hierarchy

## Data Usage Analysis

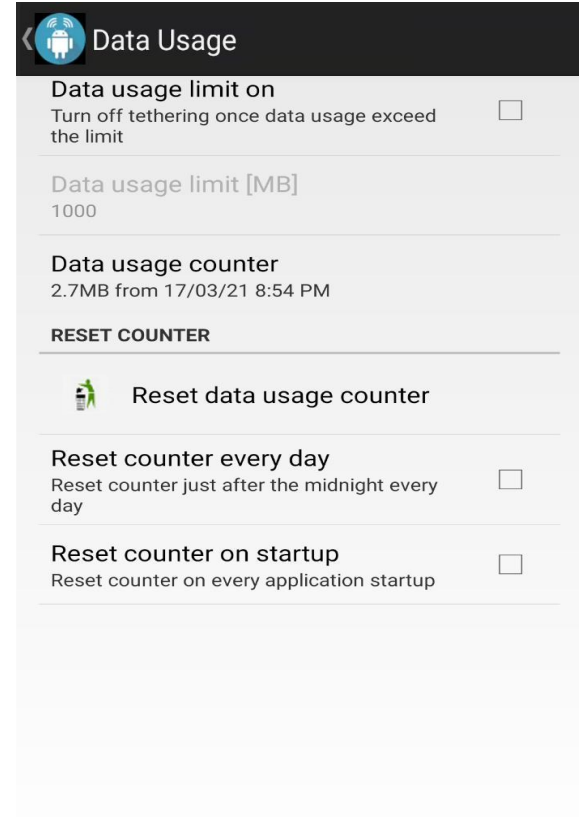
- Data Limit on → Turn off hotspot when data limit reaches
- Data usage Limit
- Data usage counter

### Reset Data usage counter

- Reset everyday
- Reset after every startup

## Deactivate on idle-

- Wifi tethering - turn off wifi tethering on idle
  - Idle time
- Turn off internet connection on idle
  - Idle time
- Connected device



It's Demonstration Time !!!



# Future work ~

1. Bandwidth Limitation
2. Mac address blocker
3. Website blocker
4. USB connection
5. Battery Temperature



Thank You...

