

IITK-CS630A

ADVANCED OS FOR EMBEDDED SYSTEMS

PROJECT PROPOSAL

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# Wi-Fi Analyzer

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# 1 Project Idea

The Basic idea of the project is to develop an Wi-Fi Analyzer app for the tizen TV. This App will be capable enough to scan Nearby wifi Access Points, provide the user with the Following information about the Wifi Access Point.

- Wi-Fi signal Strength of the Respective AP.
- The MAC address of Each AP.
- The IP address provided by the AP to the device.

Once the user is connected to a specific AP then, in order to test the proper functionality of that AP, a simple file transfer will be initiated from this connected device to AP.

## 2 Functional Attributes

We will be using the open source wi-fi API that are available at [review.tizen.org](http://review.tizen.org) for the implementation of the functional attributes of the project. wi-fi core APIs can be cloned from `ssh://<USERNAME>@review.tizen.org:29418/platform/core/api/wifi`

### 2.1 Access Points Listing

These API's provide simplified way of creating and accessing APs. In order to List access Points we first need to initialize the wifi drivers using `wifi_direct_initialise()`, `wifi_direct_activate()`. After Activation `wifi_direct_start_discovery()` discovers the access points nearby. `wifi_direct_discovered_peer_cb()` displays all parameters of the discovered access points using callbacks.

### 2.2 Connection With AP

`wifi_direct_{connect/disconnect}()` are used to connect to the respective AP's. These function calls are already implemented in the command line utility viz `wpa_supplicant` and `wpa_cli`.

### **3 File Transfer**

Using 802.11 wlan a simple ftp can be implemented using OSI stack.

### **4 Connection with Wifi-Direct Stations**

Similar to functions that are used to connect to the AP, similar api calls are available which can be exploited to interact with the WIFI direct stations. And Same flow can be used to connect to them as well.

### **5 Implementation**

During the lab session we have used command line tools as wpa\_cli and wpa\_supplicant that uses these api calls for connection management with AP, Our idea is to extend these command line utility to GUI interface that has a real time application running in Tizen TV.

We will try to finish the app design before the deadline. And if the target is achieved then our goal will be to extend the idea of same application to Bluetooth Devices.