PROJECT ORION

TEAM ECHELON

AHMET NASUHCAN ÜNLÜ|İLKER MAVİLİ |OZAN İRFAN BAYAR

PROJECT ORION

People may experience various issues while providing a connection to the wireless internet in their houses. Most common problem is "signal power attenuation". It results from prevention of the signals while they are passing through the solid objects and also due to the range. The application is designed to get over this problem.

Intended Use of The System:

Mesh systems would cost too much (approx. $180.00) to the residents and SMEs. Therefore, many of these people are trying to solve it by setting up access points to the different places that signals cannot reach from the origin wireless point although it is not a solution literally.

The purposes of application are to gain time to people and to increase the quality of connection with lower cost.

The application targets to reach the people who needs to use wireless network with more than one wireless broadcaster. These people can use the application efficiently almost like any mesh system by installing it to their phones or laptops and configurating the app easily.

Functionality:

The application has the ability to switch to the Wi-Fi which has the strongest signal without needing manual intervention. By this way, users can continue doing their work without affecting from signal attenuation and connection lost.

- **List Wi-Fi Stations:** User can see the signal strengths, SSIDs and BSSIDS from there.

- **List of Conditions:** The range, connection area and priority of stations can be changed in here.
    - o **Set Range of The Signal Strength:** User can input a dBm value.
    - o **Set Connection Area with Location:** User can mark the area with map.
    - o **Set Priority of Stations:** User can prioritize the stations.

- **Settings:** The frequency of checking and theme can be set from here.
    - o **Frequency of Checking:** User can enter second / check rate.
    - o **Set Theme:** User can choose the theme whether is dark or light.

Main Components of the System:

The application will use Wi-Fi list, sensor and GPS data efficiently as much as possible. This software will be running in the background by measuring the strongest signal. It compares the collected data from device and user. If collected data from device provide the conditions defined by the user, it connects automatically to another network. At the same time the software is trying to reduce battery consumption. The software checks the signal power periodically instead of checking all the time, this checking period can be defined by the user.

The application will be created for the Android devices at first, Android Studio will be used for this application and its programming language will be Kotlin.