

# Mobile apps programming: BLE Browser

## Statement of work

Design and develop a mobile application, using Android SDK or Flutter SDK, that will be able to discover and connect Bluetooth Low Energy Devices, browse all the services published by a connected device, list, read/write each service's characteristic depending on its properties, and shows notifications when a characteristic with notify property enabled changes.

## Requirements

- The app must detect and present to the final user if the mobile device supports BLE or not
- The app must detect and present if the Bluetooth adapter is turned on/off
- The app must be able to turn on/off the Bluetooth adapter and require all the permissions needed to work
- After all the requirements are met, the application must show a first screen that list all the detected BLE devices and this list must be updated as new devices are detected; each list item must show the BLE MAC, Device Name and the signal strength (must be dynamically updated)
- The app must have a floating button that shows or hide a floating menu with the following options:
  - Start LE scan
  - Stop LE scan
  - Connect BLE device
  - Disconnect from BLE device
- When long-click on an item of the detected devices list, the app must try to connect the device showing always information about the connection process and its errors or events
- After successfully connecting a BLE device, the app must discover and list all the services published by the BLE device; the list of services must be shown at a fragment or a new screen (the floating button must be always visible).
- When long-click on an item of the services list, the app must shows on a fragment or a new screen all the characteristics that belongs to the selected service; the app must shows the UUIDs, properties (R/W/N) and descriptors of each service's characteristic
- The app must subscribe itself to be notified to all characteristics of the service which has the notify property enabled
- The app must be able to read and write the characteristic of a service and must shows the read and write statuses on the screen
- The app must show notifications when characteristic with notify property enabled changes

- The app must have a events log that shows all the BLE connection, transactions and errors events