Introduction

The two Android applications „WEilluminate" and „Proteus Connect", collectively named „App" from here on, are Apps provided by Würth Elektronik eiSos GmbH & Co. KG for communication over the Bluetooth Low Energy standard with modules of the Proteus Series.

The Apps access the Bluetooth functionality of the users smartphone. No internet connection is required. The **minimum required Android API is 21** (Android 5.1). Also the smartphone has to support a MTU (Maximum Transfer Unit) higher than 21. Is this not the case, the app can't be used on the device.

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Project Structure

The project structure of the apps is nearly identical. The base identifiers of the apps are:

1. com.eisos.android (WEilluminate)
2. com.eisos.android.terminal (Proteus Connect)

The applications contain following packages:

- adapter
- bluetooth
- customLayout
- database
- frags
- profiles
- utils

The Proteus Connect app additionally has the „gpio" package because this app can control GPIO pins whereas the WEillumiante app cannot.

1.1 Packages

1.1.1 adapter

In this package all the adapters of the List- and RecyclerViews are saved. They are needed to give list entries a custom look.

1.1.2 bluetooth

This is one of the core packages of the app. Most of the classes have been created with the help of the Nordic Semiconductor Bluetooth libraries like the Android-BLE-Library (`https://github.com/NordicSemiconductor/Android-B LE-Library`) and the Android-Scanner-Compat-Library (`https://github.com /NordicSemiconductor/Android-Scanner-Compat-Library`). Everything that is related to Bluetooth and the connection in general can be found here. The most important classes are *UARTManager*, *BleMulticonnectProfileService* and *UART-Service*.

1.1.3 customLayout

In this package classes are saved, that specifically are used to expand Layout classes.

1.1.4 database

Everything related to databases, that means saving favorite devices or profiles, can be found in this package.

1.1.5 frags

All the necessary Fragment classes of the UI are saved here.

1.1.6 gpio (Proteus Connect only)

Everything related to GPIO is saved in here.

1.1.7 profiles

All classes that are needed to create, edit or delete profiles are located in this package.

1.1.8 utils

In here, helper classes like conversion classes etc. are saved.

Most of the Activity-Classes are located directly in the identifier package.

1.2 Resources

In Android there are multiple resource folders. They can be found under *res*.

- drawable (Images and icons)
- layout (UI design, layout xml-files)
- menu (All menu option xml-files)
- mipmap (The launcher icons)
- values (App colors and string resources)
- xml (Contains file path xml-files)

1.3 Global settings

In an Android project there are two main files for global app settings. The first one is the *Manifest.xml*. In this file all the Activities, Services and Permissions are declared. The second one is the *build.gradle(:app)*. All needed project dependencies and the app versions are set in this file.