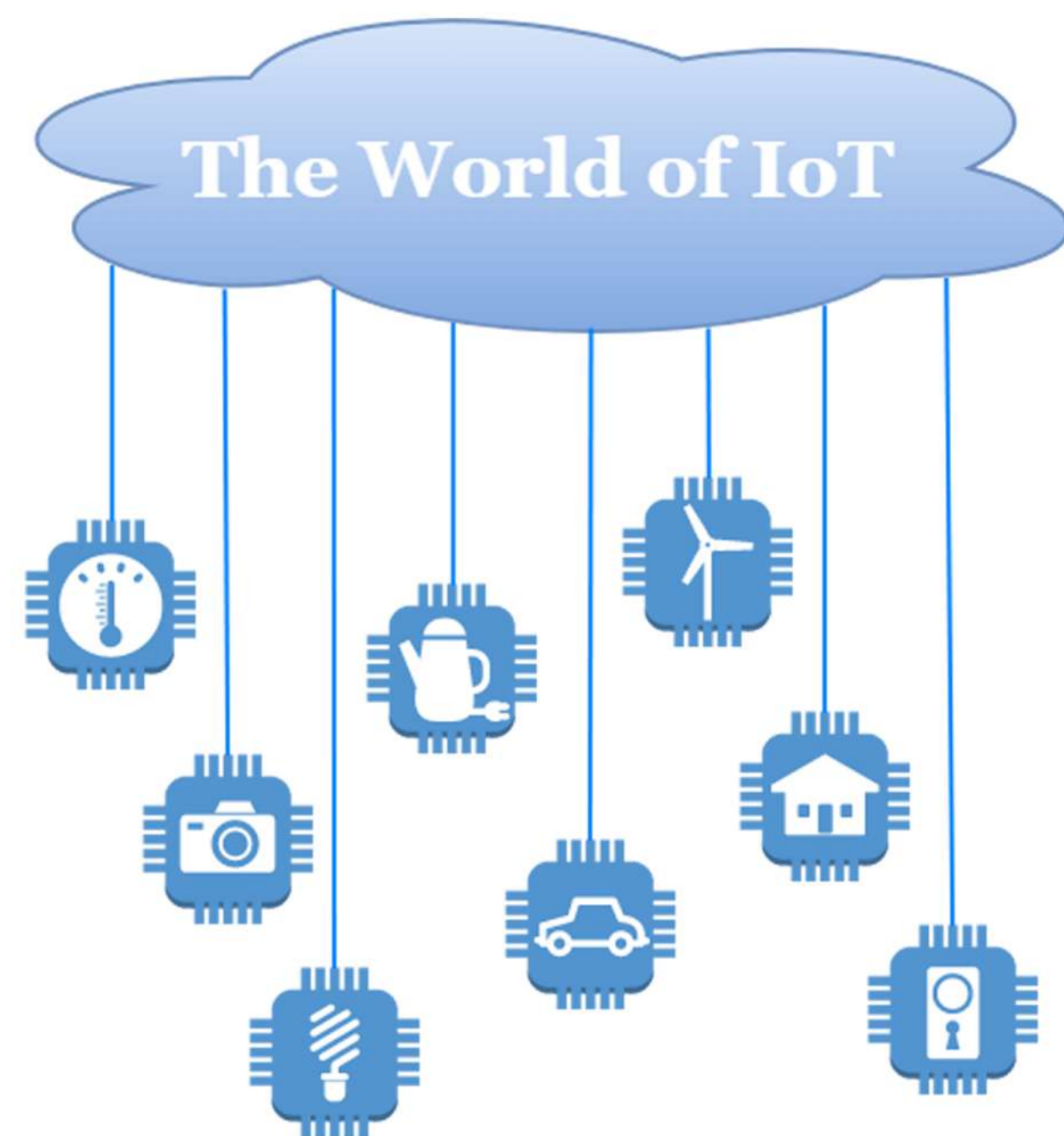


BleiD : A platform for controlling IoT

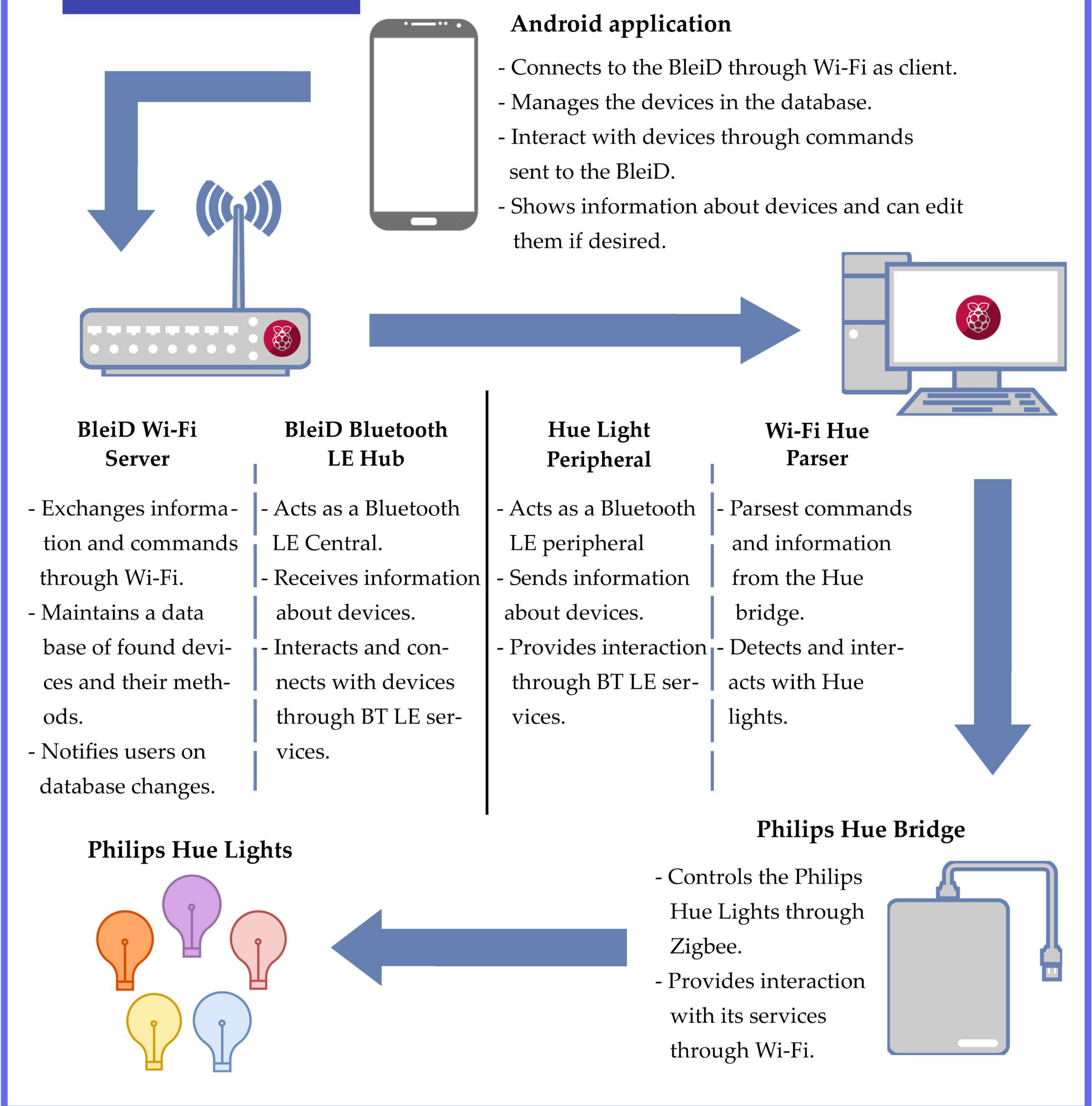
Jeroen Ceyssens

Introduction

- The amount of IoT devices keeps increasing at a very high rate, which makes supporting all of these devices harder by the minute.
- Compatibility problems like these need to be avoided as much as possible. But the question we need to ask ourselves with this, is **how we can we do this?**
- Some examples of techniques that try to tackle this problem are **Bluewave**, **Wi-Fi Aware** and **iBeacon**. The problem with these techniques is the fact that they rely on other applications or services to provide the actual interaction needed.
- This is where our system the **BleiD** ("Bluetooth Low Energy Interaction Device") comes in. By letting a separate device **communicate** with all the other devices, **detect** their services and provide the appropriate **interaction**, compatibility issues

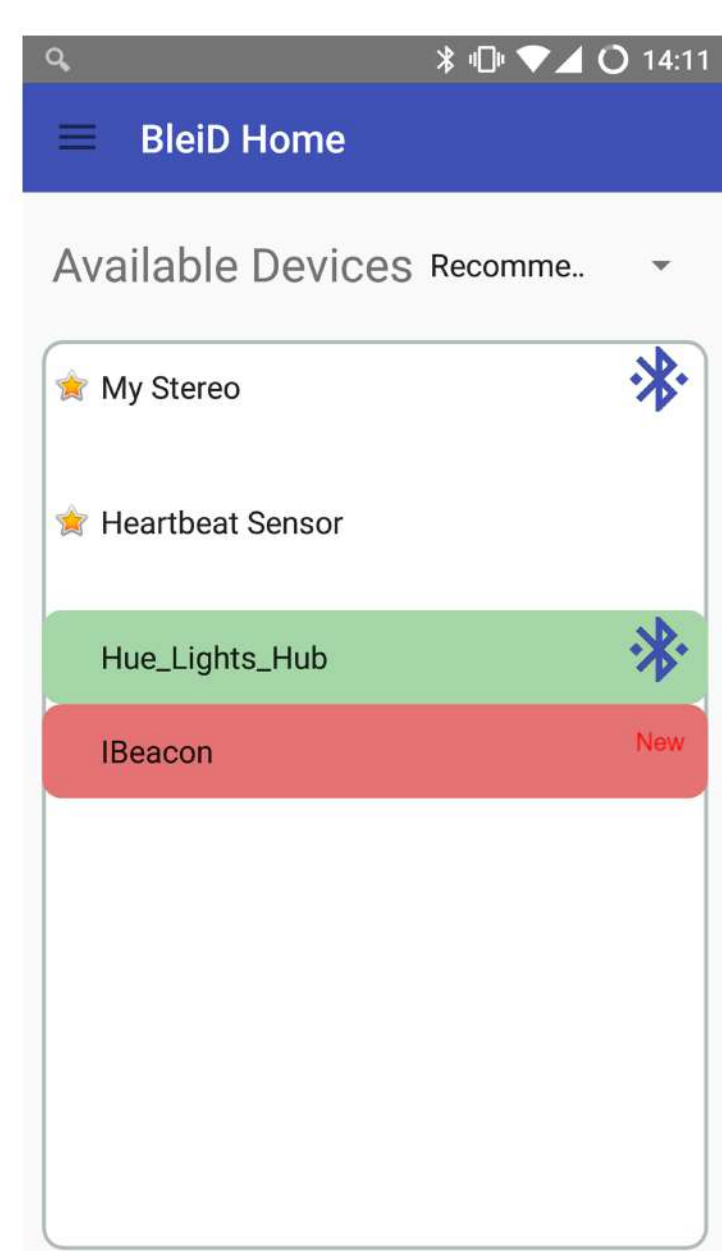
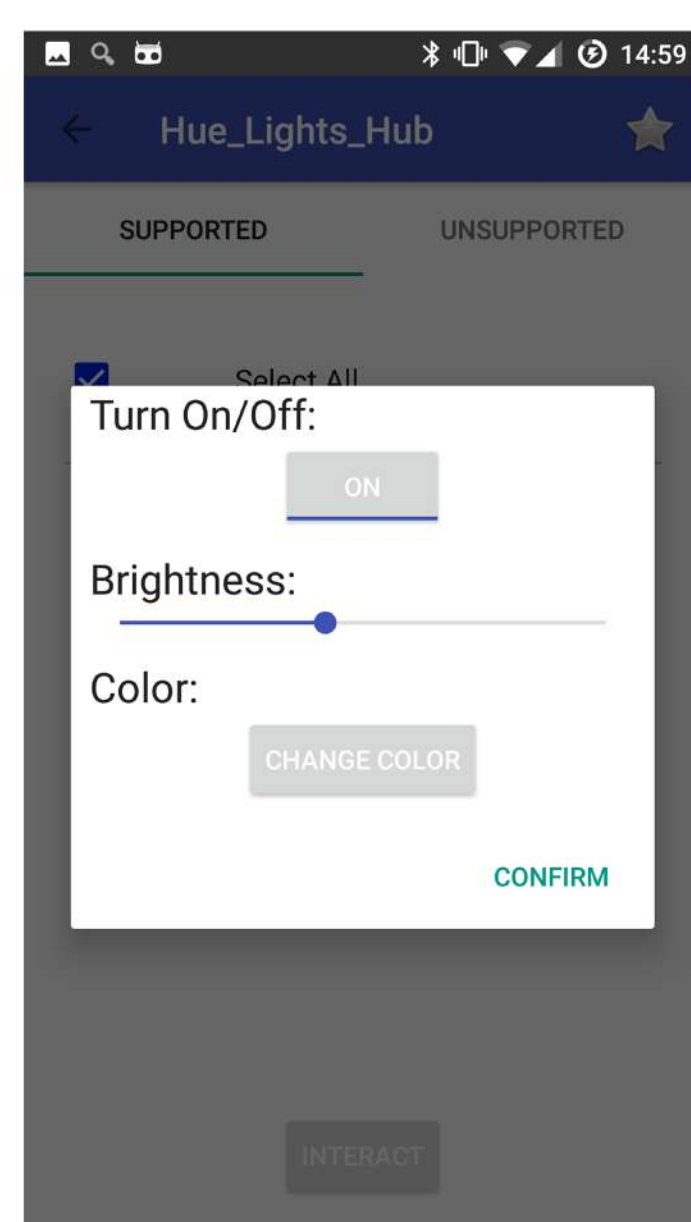


Materials



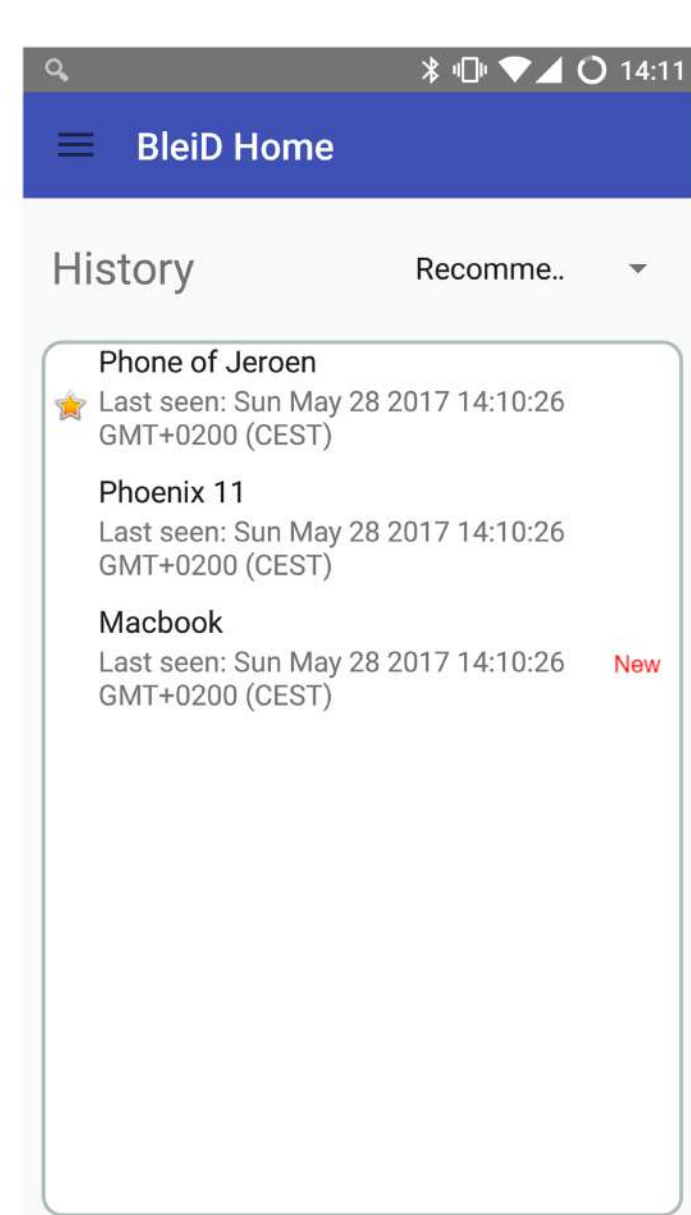
Results

Thanks to the system we have built, the Android application no longer needs to know how the devices connected to the BleiD work. The BleiD provides the connection and interaction with the devices and the Android application can both manage, edit and control them.



The BleiD is currently limited to using Bluetooth Low Energy for the connecting and detecting of devices, but other techniques can be supported in a similar manner. It's not a matter of "if" this can be done, but rather "when" this will be done.

An accounting system has been made for the BleiD that allows users to keep track of the devices that have been found and manage them. This counts for both the devices that can be interacted with and the devices that can not be interacted with.



Conclusion

- A layer of abstraction has been made for the connection and interaction with the devices. This allows us to support the devices that weren't supported originally.
- The main difference with techniques like Bluewave, Wi-Fi Aware and iBeacon, is the fact that no service-specific application needs to be installed. The only application that is required is the one of the BleiD, which makes users able to control all the other devices.
- The accounting system provides intelligibility for the users with notifications, feedback and a global overview.
- The current system only allows the use of specific "supported devices". Improvements can be made in the future to specify more interaction as well for the "non-supported devices". The basic concept of the application however, will remain the same.

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