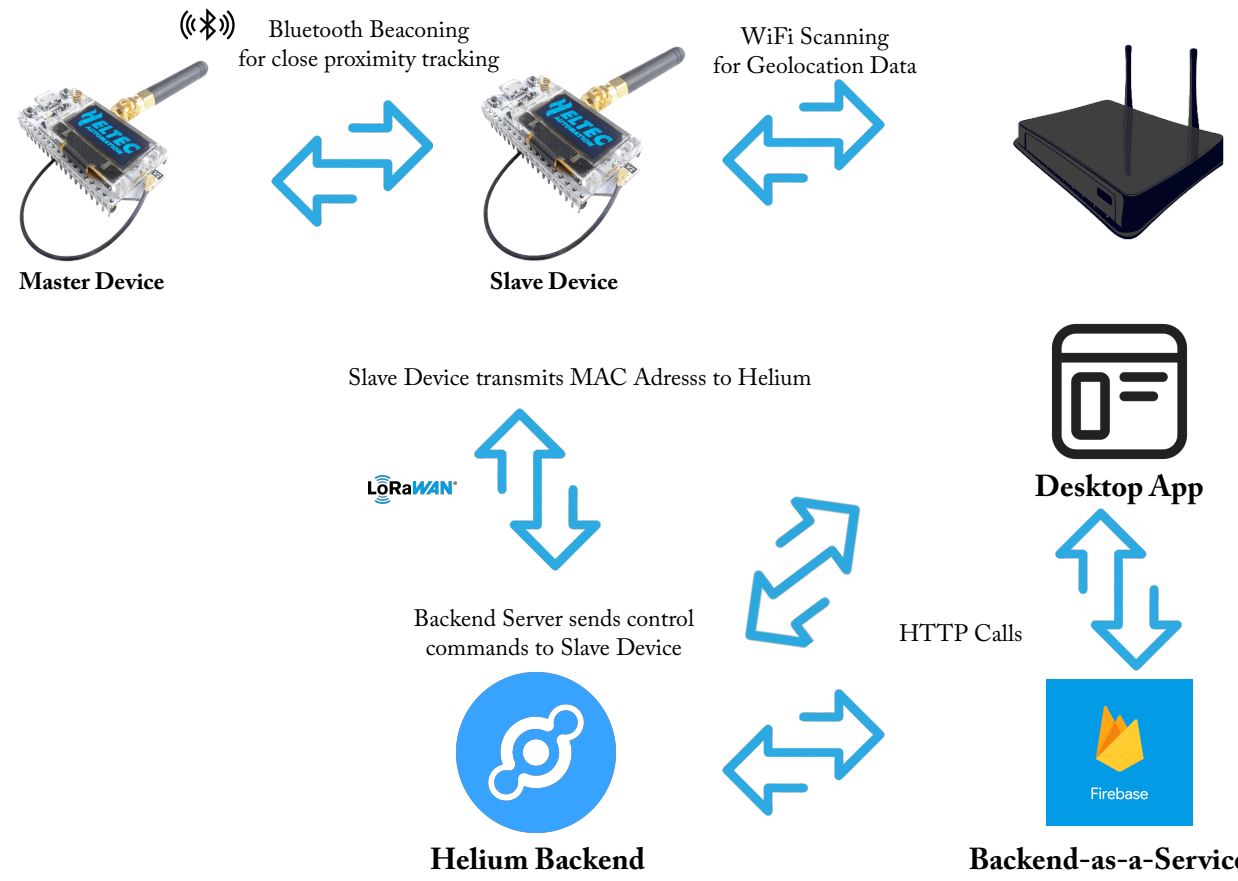
LoRaWAN and BLE location tracker

A location tracker utilizing Wifi scanning for geolocation data and BLE for close proximity precision tracking



BLOCK DIAGRAM

FUNCTIONALITY

- Slave Device operates as a LoraWAN "Airtag"
- Scans for nearby WiFi networks
- Transmits the found MAC addresses to the Helium network via LoraWAN
- Helium backend decodes data then sends it to the Firebase platform via a post request
- Firebase function calls Google API to get latitude and longitude
- All data is stored in the Firebase database
- Desktop app gets location data from the Firebase database afterwhich the user gets the pinpointed location of the tracker on a map
- Helium network sends a command to the slave device to go into bluetooth beaconing mode when user presses a button in the desktop app
- Through this the Bluetooth beaconing mode the user can find the Slave device by using the Master device

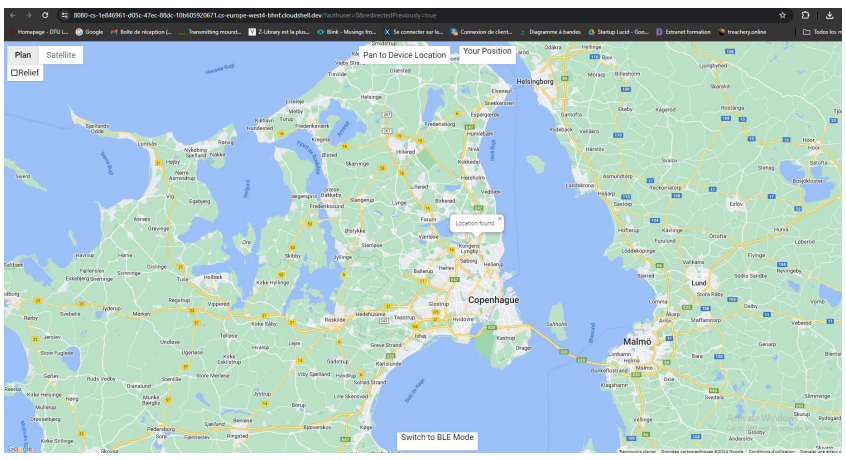
FEATURES

- LoraWAN, WiFi and Bluetooth enabled microcontroller with LCD display for Master and Slave devices
- Slave device powered by a 3.7 volt Lithium Ion battery
- Efficient use of sleep modes on Slave device for energy optimization and prolonged battery health
- Seamless integration of Bluetooth and WiFi
- User interface with a map display for slave device positioning

FUTURE

- Smaller form factor of devices
- Smart phone application instead of Desktop app and Master device
- Intelligent energy optimization
- Change network, increase coverage
- Explore technologies for proximity tracking

USER INTERFACE



- User interface will give you the approximate location of your device
- User presented with BLE mode option for proximity tracking

MEMBERS

- Bjarni Arason, s232718
- Dagur Mooney, s232720
- Oscar Theilvig, s204722
- Simon Langlais, s222593
- Snædís Daníelsdóttir, s223425
- Sebastian Zeest, s173931