HELP

Home Environment Locating People

Team of Things

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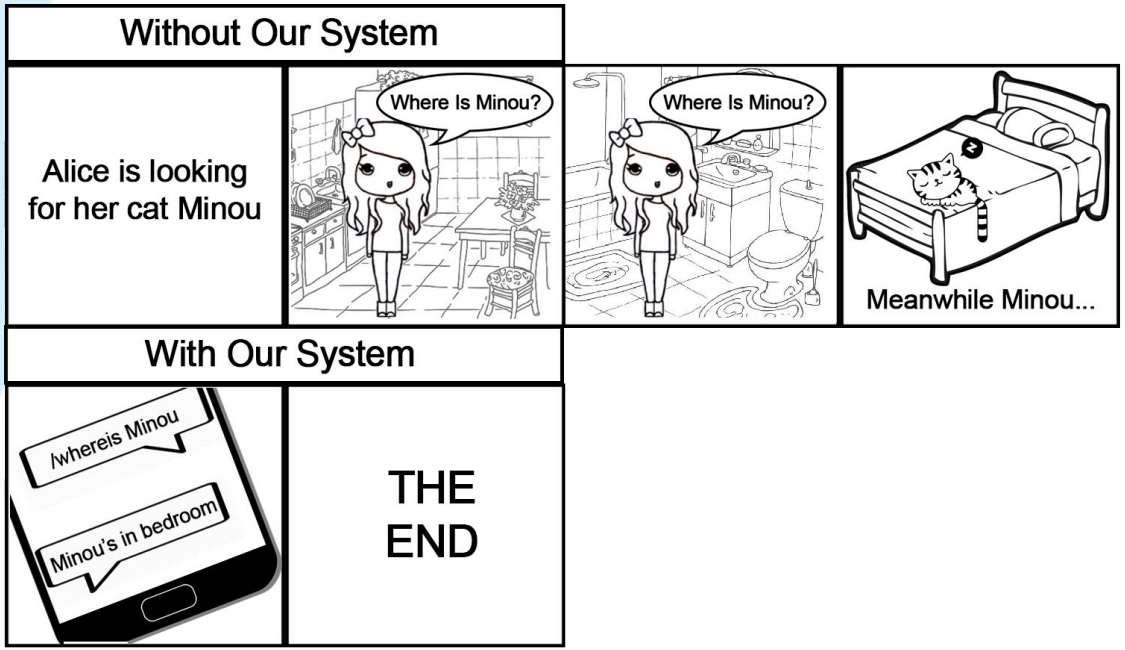
Project description

User-friendly indoor **localisation** system based on wearable tags or other **BLE devices**, with interaction via Telegram Bot and RESTful service.

Use case example: find your cat



Technologies

Devices (Hardware)

- RadBeacon BLE as wereable tags
- Raspberry PI as stations / anchors
- Remote Server

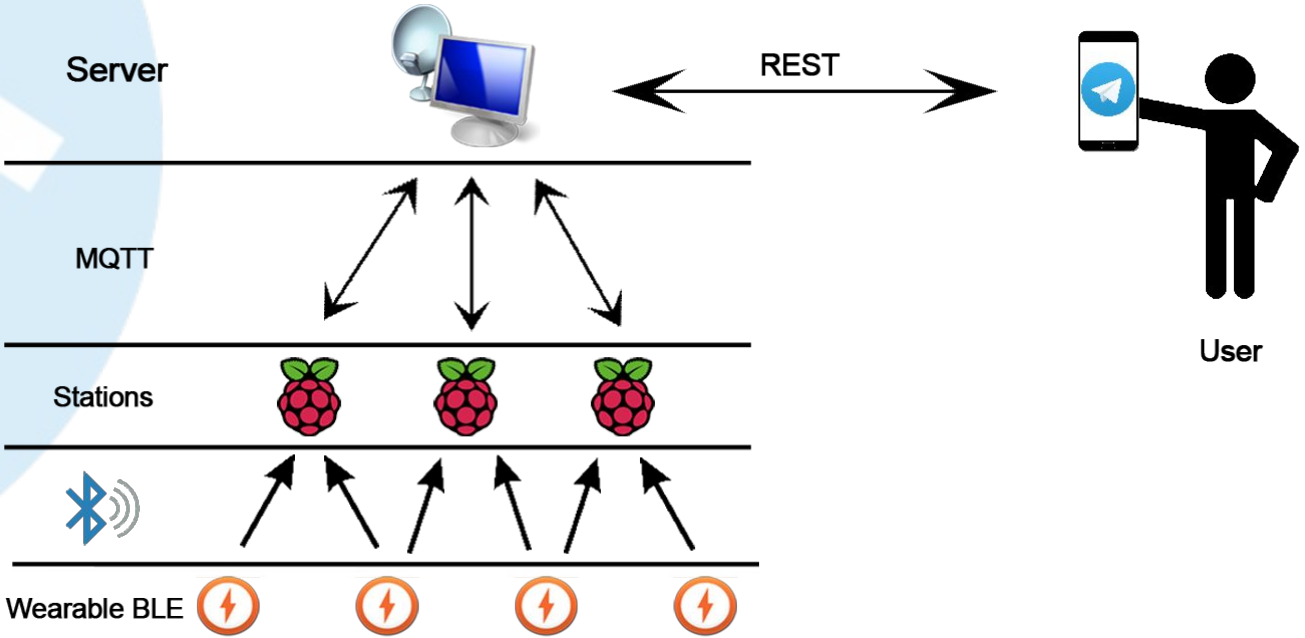
Protocols (Software)

- MQTT

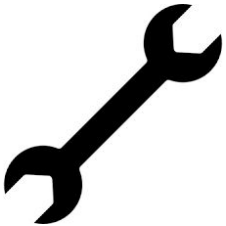
User Interfaces

- RESTful Interface
- Telegram Bot

System Architecture



Installation: keep it simple!

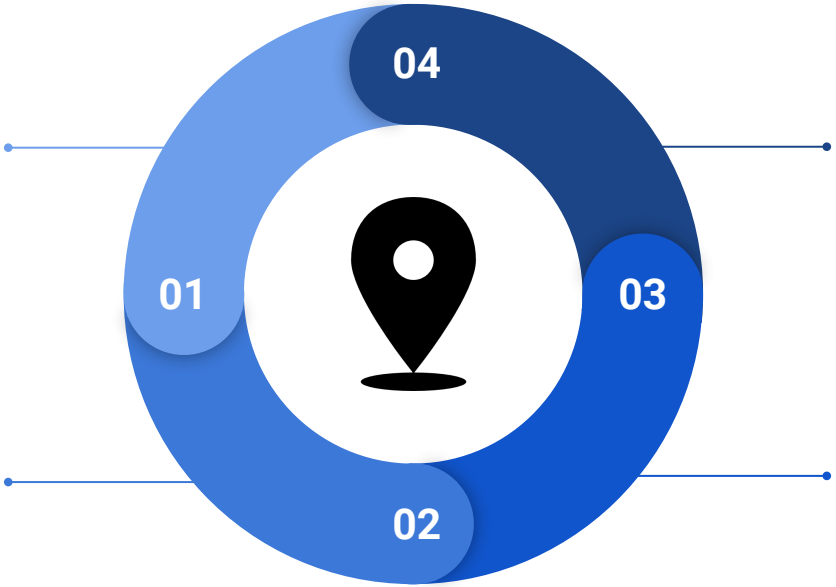


Place Stations	Add your rooms	Add the users	Turn on devs
Place a station in each interested room of your home.	Associate each station with the room where they're positioned with the Telegram bot.	Associate the BLE devices with the user, still with the Telegram bot.	Power on your BLE device clicking on it.

Localisation

BLE Advertising
(Tags)

BLE Scan
(Stations)



Triangulate
(Server)

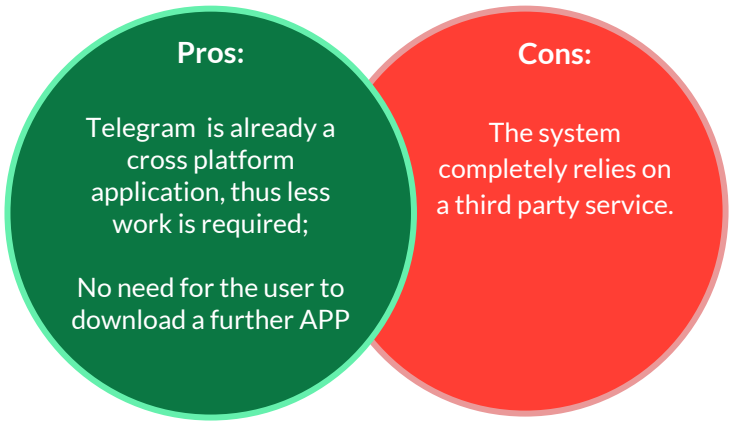
Data Collection
(Server)

User Interaction

The user can interact with the system via a Telegram bot.

It allows the user to:

- get information about who is where in the house
- add / remove an user
- add / remove a room



Services provided: localisation info

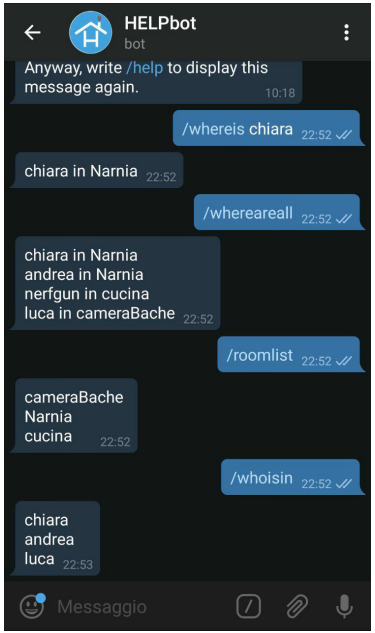
Locate a specific user

Locate all the users

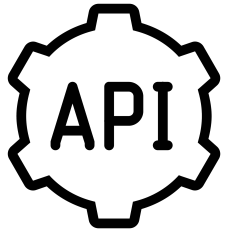
Show who is in a specific room

Get the list of all the rooms

Get the list of all the users

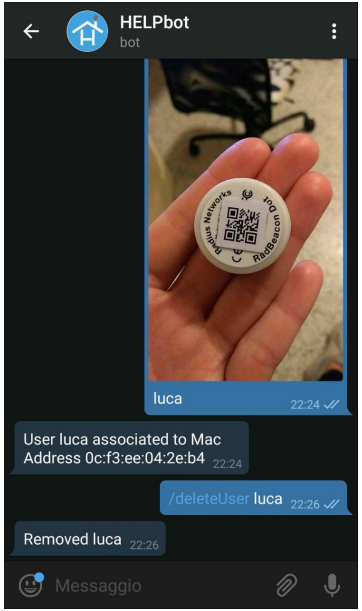


Services provided: users management



Add a new User: take a picture of the QR code of the BLE device (the QR code represents its MAC address) and add a name for the new user

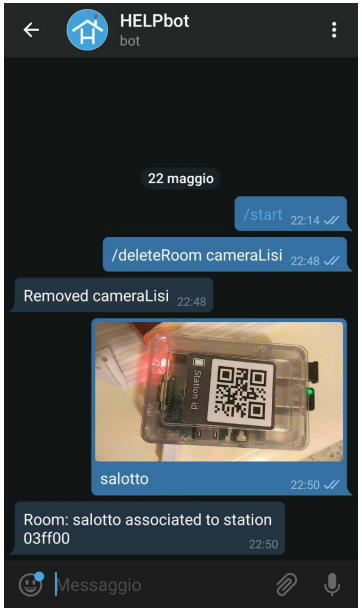
Delete a User: send the name of the user to delete



Services provided: rooms management

Add a new Room: take a picture of the QR code of the station (the QR code represents its identification code) and add a name for the new room

Delete a Room: send the name of the room to delete



DEMO

Possible improvements

Improve the localisation algorithm

Extend the system for several installations: add a username/password service to the Bot so that every user would access only to the data relative to his house

Improve the installation phase: automate the connection to home network, for instance with a WPS button embedded in the stations

Provide a push notification system

THANKS FOR THE ATTENTION

Github link:

https://github.com/TeamOfThings/H.E.L.P.