Semester Project 3 WiFi2BLE REST API Intro v2



Semester project: Distributed Software Systems with Embedded Elements

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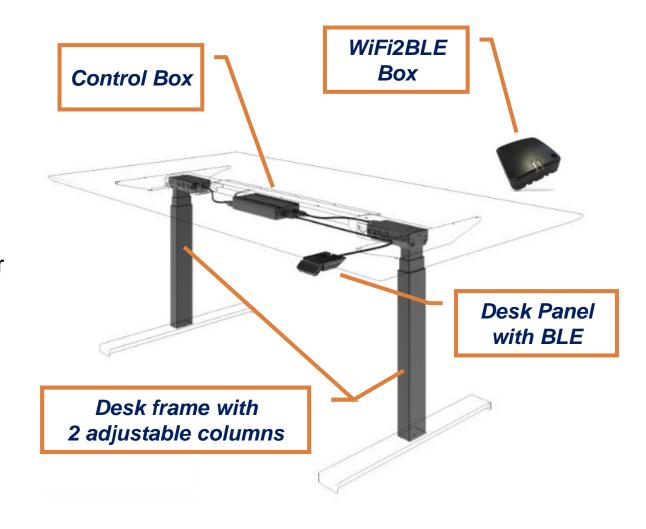
Project Case Study: Desk Usage Supervision

- → Obtain, visualize and analyze desk usage data for health, occupancy and maintenance
- → Motorized desks are commonly used in office spaces as they can improve user working comfort
- → Greater gains could be achieved by learning from the desk data, for example about the desk moving distance and frequency



Desk System Operation

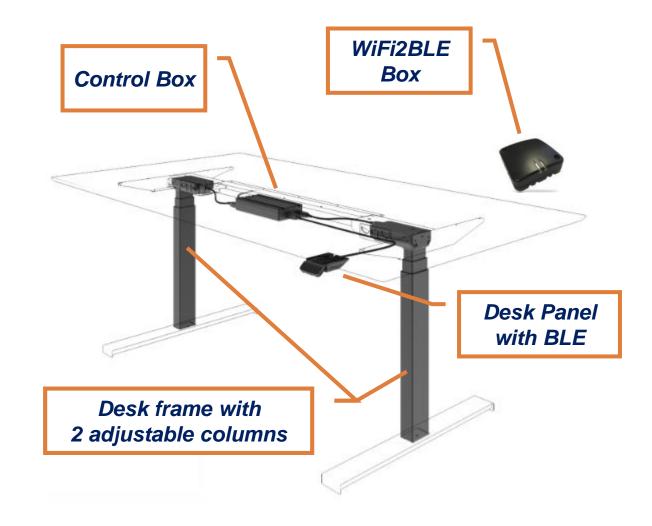
- → Desks columns are controlled by the intelligent Control Box that is connected to the Desk Panel
- → The desk panel accepts user commands to adjust desk height up and down
- → The WiFi2BLE box exposes desk information over a Wi-Fi by translating the desk Bluetooth Low Energy (BLE) protocol to a Web API
- → This allows for monitoring and controlling desks remotely
- → Desk Panel has as built-in anti-collision sensor, display, and storage of favorite positions 🎨





Web API Data

- → Number of desks connected to WiFi2BLE box
- → Desk ID, Name, Manufacturer
- → Position
 - → Get and Set
- → Speed
- → Status
- → Last errors with timestamps
- → Activation counter
- → Sit/stand counter





Python WiFi2BLE Simulator

- → Simulation of the WiFi2BLE box Web API
- → To speed up project development and testing
- → Get independent of the hardware and NDAs
- → Mitigate the Project Coordinator temporary "disabilities"
- → Requirements: Python 3
- → Almost all, but missing
 - → Errors dynamics
 - → User inputs



Creative use of AI 😊



REST API Basics

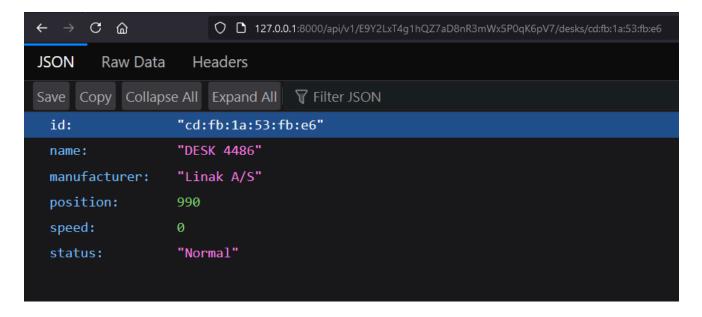
- → Base URL for HTTP: http://127.0.0.1:8000
 - → Assuming local execution
 - → For testing only
- → Expecting path format: /api/<version>/<api_key>/<endpoint>
 - → Versioned API, <version>: v2
 - → "Secured", <api_key>: 32 characters, for example: E9Y2LxT4g1hQZ7aD8nR3mWx5P0qK6pV7
- → Object type: JSON
 - → Content type: application/json
- → See **README.md** for details

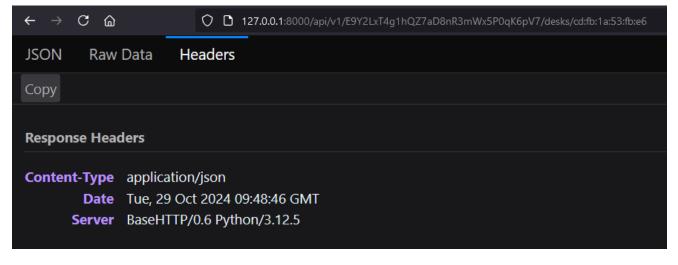


Testing REST API

→ Browser, Firefox

- → Hoppscotch
 - → Open-source alternative to Postman
 - → https://docs.hoppscotch.io/







nank you see



