MISSION – REMOTE CONTROL OF SHELLY DEVICES FROM OWN SERVER

The mission is to build a service/website to be able to control LED and/or I/O control units on several different levels, from chains, areas, postal codes, down to objects, departments, rooms and unit level.

USER PERSPECTIVE - User Interface

Create an intuitive, responsive, and user-friendly design for your website. This includes the layout of the control panel for the devices, user authentication (login page), and navigation on the page.

It should be easy to control the units through simple selections, e.g. via dropdown menus in combination with e.g. color charts. Or in the case of control of locks and sensors, grouping of devices. Current pages initially:

User

- Home / Login page
- Main page where the devices are controlled (Based on the user's customer affinity and device capabilities)
- Profile page for users (so the user can change their own email address, phone number, password, etc.)

Admin

- Page to be able to add, modify and remove users
- Page to add, change and remove devices
- Page to add, modify, and delete items
- Global Settings Page to Manage API Keys and URLs

The pages should be prepared to be translated into several different languages.

HOME / LOGIN PAGE - User authentication

Implement secure login features. This should include username and password as well as two-factor authentication via the Authenticator app (to be able to be enabled/deactivated per user), for increased security.

MAIN PAGE - Device Controls

LED LIGHTINGFunctions to control LED lighting via API or with your own MQTT Manager. This can include turning LEDs on/off, adjusting the brightness, changing color temperature, scheduling on/off, and perhaps even creating custom lighting scenes. It should be possible to change both at group level and individually.

LOCK CONTROL Functions to control Locks and Alarms via API or with your own MQTT Manager. This can include turning on/off locks, adjusting lock window timings, scheduling business hours, and perhaps even creating custom lock scenes.

COMMUNICATION – API / MQTT (SHELLY)

Documentation of the API interface can be found here:
https://shelly-api-docs.shelly.cloud/cloud-control-api/

https://shelly-api-docs.shelly.cloud/gen1/#common-http-api

MQTT (If we decide to use):

https://shelly-api-docs.shelly.cloud/gen1/#mqtt-support

Documentation of specific units can be found here (updated continuously):

RGBW2-Color mode: https://shelly-api-docs.shelly.cloud/gen1/#shelly-rgbw2-color

RGBW2-White mode: https://shelly-api-docs.shelly.cloud/gen1/#shelly-rgbw2-white

Plug/PlugS: https://shelly-api-docs.shelly.cloud/gen1/#shelly-plug-plugs

Door/Window: https://shelly-api-docs.shelly.cloud/gen1/#shelly-door-window-1-2

H&T: https://shelly-api-docs.shelly.cloud/gen1/#shelly-h-amp-t

WiFi Button: https://shelly-api-docs.shelly.cloud/gen1/#shelly-button1

Plus 2PM: https://shelly-api-docs.shelly.cloud/gen2/Devices/ShellyPlus2PM

Plus H&T: https://shelly-api-docs.shelly.cloud/gen2/Devices/ShellyPlusHT

Bluetooth gateway: https://shelly-api-docs.shelly.cloud/gen2/Devices/ShellyBluGw

Sensor Add-On: https://shelly-api-docs.shelly.cloud/gen2/Addons/ShellySensorAddon

The device control must, on each unit type, be easily updated as the supplier continuously adds new features and improvements, which we must be able to easily manage.

DATABASE & SERVER MANAGEMENT

mySQL (MariaDB) Database for storage of data
Web hosting at Loopia AB with its own domain

EXTERNAL API CONNECTION

Ability to see the status of individual devices via external API call that is answered with a Json response. Security key for managing access rights or other smart solution and checking that the call is valid and free of malicious threat code.

SECURITY & PRIVACY

User Data and shall be protected to prevent unauthorized access to the Service.

CUSTOMIZATION OPTIONS

Users should be able to customize their settings to a certain extent, such as naming different devices and adapting the user interface to their needs (disability-friendliness). Some of these features may be managed by your browser's settings and we only need to ensure that the service works for these settings.

TESTING AND MAINTENANCE

Include a plan for extensive testing to ensure that the system functions properly under various conditions, as well as a long-term maintenance plan for the software.

DOCUMENTATION

User manuals: Create detailed and easy-to-understand user manuals. These should include step-by-step instructions on how to register, log in, and use the various features of the website. It is important to include information on how to control different devices, how to use scheduling features, and how to customize settings.

Technical Documentation: Database structure, API documentation, security protocols, and information about third-party services and/or integrations used.

The program code should be clearly commented on at the beginning with a description of the code's purpose and inline so that it is easy to find and update parts of the code in the future.

COMPATIBILITY & SCALABILITY

The service/website must be compatible with different devices and browsers. Take height to smoothly handle future upgrades and scalability.

PROFILE PAGE

The profile page should contain these fields but should be able to be easily expanded if necessary.

- Personal Information:
  - First name
  - Surname

- Contact
  - E-mail address
  - Telephone number

- Company information (more info in the company data table)
  - Company Name (Dropdown from Customer Data table)

- Safety information
  - Password change feature
  - Security questions for password reset
  - Two-factor authentication settings
  - User status (Active/Inactive) can be changed only by Admin

- Settings & Preferences
  - Locales
  - Time zone
  - Notification settings (e.g. email, SMS)

- Access and Rights Information:
  - User type - different levels (principal, group manager, user)
  - Information about the user's access rights or permission levels, can be changed only by the Admin
  - Log of recent logins and actions

- Log-Out Function
  - Ability to log out
  - Email link to report security issues or technical glitches(email address provided by me)

If the user has not logged in for more than 6 months, an email should be sent to the user with a reminder to log in to keep the account active. The account shall be deactivated if the user has not logged in for 12 months.

CUSTOMER COMPANY DETAILS

The company profile page should contain these fields but should be able to be easily expanded if necessary. This page is managed by admin only.

- Company

- Customer number
- Customer ID

- Logo

- Contact
    - Mailing address
        - Postal address line 1
        - Postal address line 2
        - Zip code
        - Place
        - Country
    - Visiting address
        - Postal address line 1
        - Postal address line 2
        - Zip code
        - Place
        - Country
        - Map coordinates (Google maps)
    - Telephone number
    - E-mail address
    - Web site

- Registration and Registration Number

- Pricing Fields
    - Unit price
    - Price per item
    - Price per month
    - Price per user
    - Price Per License

- Contract and Agreement Information:
    - Contract Manager
        - Name
        - Telephone
        - Email
    - Current and previous agreements (file upload with file description text field)
    - Expiration date of the contract
    - Text field with information about follow-ups and renewals

- Fields to be displayed on items if the item is enabled for this customer. These are defined by the customer

  Repeat fields e.g.

  - KUNDFÄLT1 (e.g. Region)
    - Field type
    - Heading
    - Description
  - KUNDFÄLT2 (e.g. District)
    - Field type
    - Heading
    - Description
  - KUNDFÄLT3
    - Field type
    - Heading
    - Description
  - KUNDFÄLT4
    - Field type
    - Heading
    - Description
  - KUNDFÄLT5
    - Field type
    - Heading
    - Description

OBJECT INFORMATION

Objects are the physical location where devices are installed. Objects can belong to a group, chain or be completely independent.

- Active store (Yes/No)
- Object Name (Text)
- Chain (Dropdown)
- Corporate
- Contact
    - Mailing address
        - Postal address line 1
        - Postal address line 2
        - Zip code
        - Place
        - Country (from data table: COUNTRY TABLE)
    - Visiting address
        - Postal address line 1
        - Postal address line 2
        - Zip code
        - Place
        - Municipality (from data table: MUNICIPALITY TABLE)
        - Map coordinates (Google maps)
        - Google LocationID
    - Delivery address
        - Street
        - Street number
        - Delivery Instructions
        - Zip code
        - Place
        - Country (from data table: COUNTRY TABLE)
        - Map coordinates (Google maps)
        - Google LocationID

    - Switchboard phone number
    - E-mail address
    - Web site

- Internet type of the object
    - TYPE WiFi / LAN
        - SSID
        - Password
        - WiFi protocol

- Checkboxes for activating items for customer (show only those customers who are active)

- Customer-specific fields
    - Priority Item
    - See specific "repeat fields" for item "CUSTOMER COMPANY DETAILS"

- Opening hours
    - Monday Opens
    - Monday closes

    - Tuesday Opens
    - Tuesday closes

    - Wednesday Opens
    - Wednesday closes

    - Thursday Opens
    - Thursday closes

    - Friday Opens
    - Friday closes

    - Saturday Opens
    - Saturday closes

    - Sunday opens
    - Sunday closes

- PSS Region Name
- PSS Region id

- Pictures from the object
- Documents associated with the object

CONTROLLER DATA

Each unit needs to be defined individually, but here is general information we need to handle:

- Installed in PSS-QR Code/Serial Number
- Device type (from data table: CONTROL UNIT TYPES-TABLE)
- PSS-QR code
- Device ID
- Decimalid
- Device Name
- Customer Device Name
- Customer ID (owner of the device)
- Paired with PSS QR Code- Show clickable list of all devices connected to this device
- Installation Date Card
- Registration Date Date
- Last Updated Date/Time
- MAC
- IP address
- Device, network, wifi, SSID
- Device Network Password
- Unit Signal Strength
- External IP address
- External connect port

- Basic settings
    - Auto on/off (after power failure)
    - White: 0-100% (White channel)
    - Color: 0-100% (Brightness)
    - RGB: #xxxxxx
    - Color chart to be able to choose RGB code from

- List last 10 settings (loaded from device before sending update)Auto on/off | White | COLOR | RGB [Button to send this setting to the device]

- Force individuality (Yes/No)(Disconnect from any group affiliation so that the unit is only controlled individually)

- Control Unit Placement
    - Built-in device
    - Built into interior design
    - Built-in electrical plug

- Placement listing
- Placement Image

- Time zone
- Alarm Min
- Alarm Max

- Listing

CONTROL UNIT TYPES TABLE

Here we store information about the different items we can control remotely and their specific tasks.

- Our article name
- Our Part Number
- Manufacturer
- Supplier part number
- Picture 1
- Figure 2
- Installation Manual
- User manual
- Manufacturer's Product URL
- Json_decode_script
- Self_reporting Yes/No
- Temperature sensor Yes/No
- Humidity sensor Yes/No
- Battery-powered Yes/No
- External Power Supply Yes/No
- On/off switch Yes/No
-

COMPANY GROUP TABLE

Here we store information about the different groups to which the chains may belong.

- Basic information
  - Country
  - Logo
  - Name of the chain
  - Group affiliation
  - Orgnr
  - Switchboard phone number
  - Note fields for this chain

- Mailing address
  - Postal address line 1
  - Postal address line 2
  - Zip code
  - City

- Visiting address
  - Postal address line 1
  - Postal address line 2
  - Zip code
  - City
  - Google LocationID
  - Google Coordinates

View a map with the visiting address marked with the corporate logo

CHAIN TABLE

Here we store information about the different chain affiliations to which the objects may belong.

- Basic information
  - Country
  - Logo
  - Name of the chain
  - Group affiliation
  - Orgnr
  - Switchboard phone number
  - Note fields for this chain

- Mailing address
  - Postal address line 1
  - Postal address line 2
  - Zip code
  - City

- Visiting address
  - Postal address line 1
  - Postal address line 2
  - Zip code
  - City
  - Google LocationID
  - Google Coordinates

View a map with the visiting address marked with the chain's logo

COUNTRY TABLE

This is where we store information about countries.

- Country name
- Country ISO code (ex.SE)
- Country Phone (ex. +46)
- Listing

REGION TABLE

Here we store information about the different geographical areas in each country.

- Country ID
- Region Name
- Region area coordinates
- Listing

MUNICIPALITY TABLE

Here we store information about the different geographical areas in each country.

- Country ID
- Region ID
- Municipality name
- Municipality area coordinates
- Listing

LOG TABLE

Here we save a log about the different devices. More log points will need to be added. But this is a good start

- Device ID
- Device Type
- Date/Time
- Status on/off
- Battery %
- White %
- Color %
- RGB #xxxxxx
- WiFi Strength
-

CLOUD SERVICE TABLE

Here we save a log about the different devices.

- Cloud ID
- Cloud name
- Customer ID
- Cloud API URL
- Cloud API Key
- Notes