

# CRUISE SHIP SYSTEM: Entertainment and cabin control system

Coursework 2 – Part 1

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**11 APRIL 2021**

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Design for Interaction

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# Introduction

The Cruise Lines International Association (CLIA), which is the world's largest cruise industry trade association, describes the use of technology on cruise ships in a presentation as following:

**Travelers use tech in daily lives and are expecting smart tech when vacationing as well. Cruise lines have adopted technology for cruise travelers—including keychains, necklaces, bracelets, apps and more—in order to provide a highly personalized travel experience while on and off the ship.**

*~ CLIA Presentation 2019<sup>1</sup>*

This shows that the cruise industry is very aware of the importance of entertainment and smart technology on the ship.

However, technology only works well if the interaction with it also works well. This requires a well-thought-out design concept that is tailored to the target group.

In the last few weeks, I have been working on how such a design could look like. I have created a design that appeals to a combination of different devices to enable control over the entertainment system as well as cabin control and event booking. This concept is now described below and programmed as a proof of concept following this paper (in CW2-Part 2).

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<sup>1</sup> <https://cruising.org/-/media/eu-resources/pdfs/CLIA%202019-Cruise-Trends--Industry-Outlook>

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# User Goals and Requirements

## Target group analysis

The design concept is divided into two core areas. One area is only visible to staff and contains the control and management system. All relevant service areas are managed here. The other core area concerns the entertainment and cabin control of the ship's guests.

### Ship Guest

Cruise ships are visited by very different people. What they all have in common is that they want to spend their holidays here, be catered for and looked after, and have high expectations of service.

It was important for the design concept that cruise ships are also visited by older people who may not have their own smartphone or tablet and are not used to dealing with such a device. For this reason, I decided that the entire system could be controlled just with the TV set and a specially designed remote control.

For all other more tech-savvy guests, there is the option of connecting their own smartphone to the system in order to retrieve relevant information or book events.

### Ship Staff Member

The target group of service staff does not need to be addressed in such detail, as they can receive training for the system if they are not comfortable with it. It should nevertheless be intuitive to use and accessible via company laptops as well as company mobile phones in order to also handle support requests & phone calls directly on the deck.

## Ship's Guests: Device selection

As I just mentioned, it was particularly important for me that all functions are available purely via the integrated TV in the cabins. In addition, lighting and climate control are also available directly on the special remote control, without having to interact with any

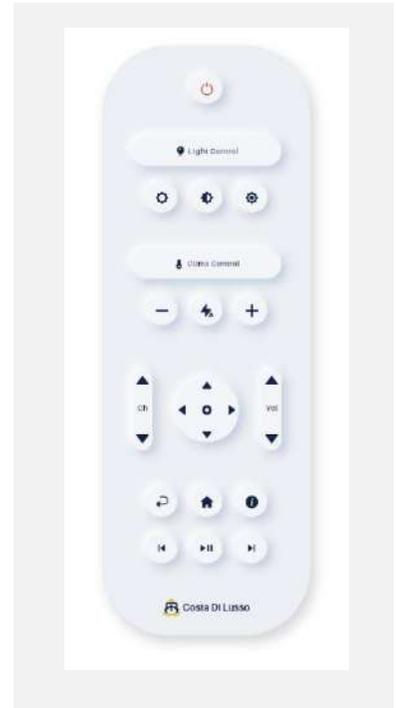
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screen elements. The buttons on the remote control can simply be pressed, which is intuitive and very quick to learn.

To make it easier to get started with the system, I would place a note in the cabin explaining the basic functions and play a tutorial video when the TV is started for the first time.

The video also mentions that it is possible to link your user account to your own smartphone for event bookings and schedule notifications. With the app it is not possible to control the lights or the cabin temperature, as I do not see the need for this. The remote control and the TV menu are perfectly adequate here.

The user account is already set up on the TV before the guest checks into the cabin. Event bookings made via the system are processed via the user account. The smartphone automatically connects to this user account when an individual QR code is scanned. The QR code is shown on the introductory leaflet and can also be called up on the TV in the settings.



## Navigation and Interactivity Visualization

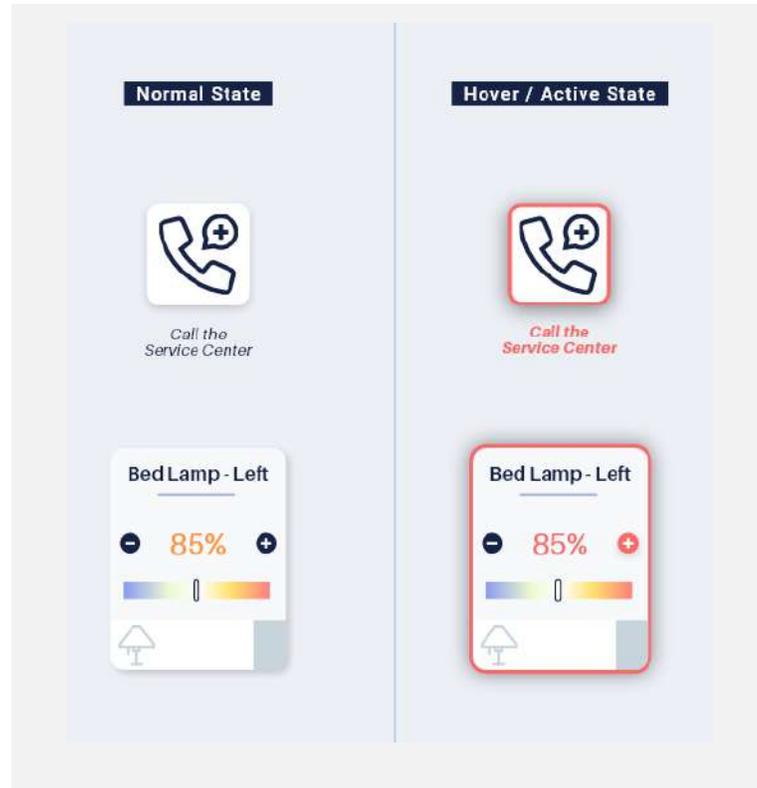
To navigate through the menu, either the cursor keys on the remote control can be used or the remote control is waved "like a magic wand" and a cursor appears on the TV set at the point to which the remote control is pointed.

This makes it possible to select menu items more efficiently, but it takes a little more practice than simply navigating with the cursor keys.



In addition to the standard status, all interactive elements also have a hover / active status when they are selected.

This gives them a clearer drop shadow and a red border or other color changes depending on the interactivity element. This indicates on which element you can currently carry out an interaction.



## Functional Requirements

The following is a list of the core functions (divided into guests and service staff) that the system can do. These functions are described in more detail later using task flow diagrams, wireframes, storyboards, and sequence diagrams.

### Ship Guest

- a) Control TV
- b) Control cabin lightning
- c) Control cabin temperature
- d) Event reservation
- e) Event & schedule notifications
- f) Route Information
- g) Get Help
- h) Connect smartphone app (authentication)

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## **Ship Staff Member**

- a) Login to access system
- b) Manage events
- c) Manage support requests
- d) Manage cabin check-ins & status
- e) Logout

## **Non-Functional Requirements**

In addition to the functions, the system has other requirements that must be fulfilled.

### **General**

- a) Available 24/7

### **Ship Guest**

- a) All functions are also available via TV, app is optional
- b) Guest TV System is already set up before check-in
- c) Instructions flyer for app download and connection code / QR code on table in cabin
- d) Each ship guest has his own (pre-setup) account for event bookings
- e) Entertainment and booking account resets at guest check-out
- f) Background system triggers alarm in case of a conspicuously high number of bookings
- g) TV has an introductory screen / video explaining functions when it is first started
- h) App is universally available for IOS and Android
- i) Notifications reach users both visually and acoustically, regardless of whether the TV is on or off

### **Ship Staff Member:**

- a) Secure login for every employee
- b) Differentiation between support staff, event hosts and admins (can send route changes and notifications globally and event-independently)
- c) Access to the system from both work mobile phones and laptops in the staff area

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## Information Model

The following list is purely from the point of view of what information I map onto the designs. There is no guarantee of completeness and it is only intended to provide a rough overview of what data is required in any case.

- Guest booking records with account information
- Event records
- Event booking records
- Current cabin lightning and temperature status
- Cabin status (checked in, cleaning, defect, ...)
- Live ship route information
- Live ship Speed
- Live weather Information
- Boarding & meals timetable
- User preferences records
- User support requests
- Log-In Data for Staff
- Log-In Code to connect User Data with Smartphone

# Task Analysis and Task Flows

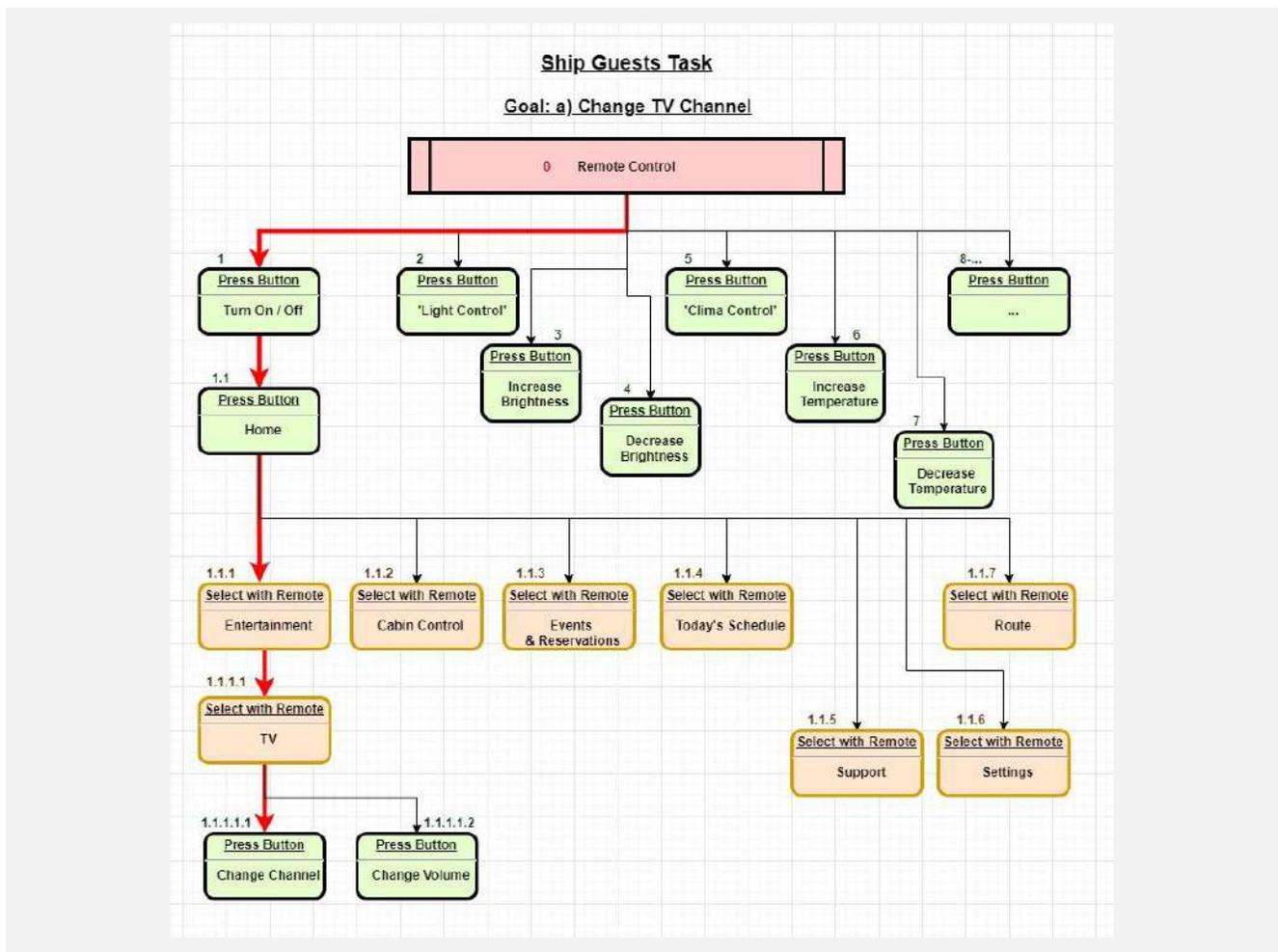
In the following, I have created task flows for the above-mentioned functional requirements for both guests and service staff of the cruise ship. Some of the requirements were specified a bit more to make the task flow clearer. If this was the case, I have described it here above the diagram.

Other requirements are passive and do not require any interactions.

## Ship Guest Tasks

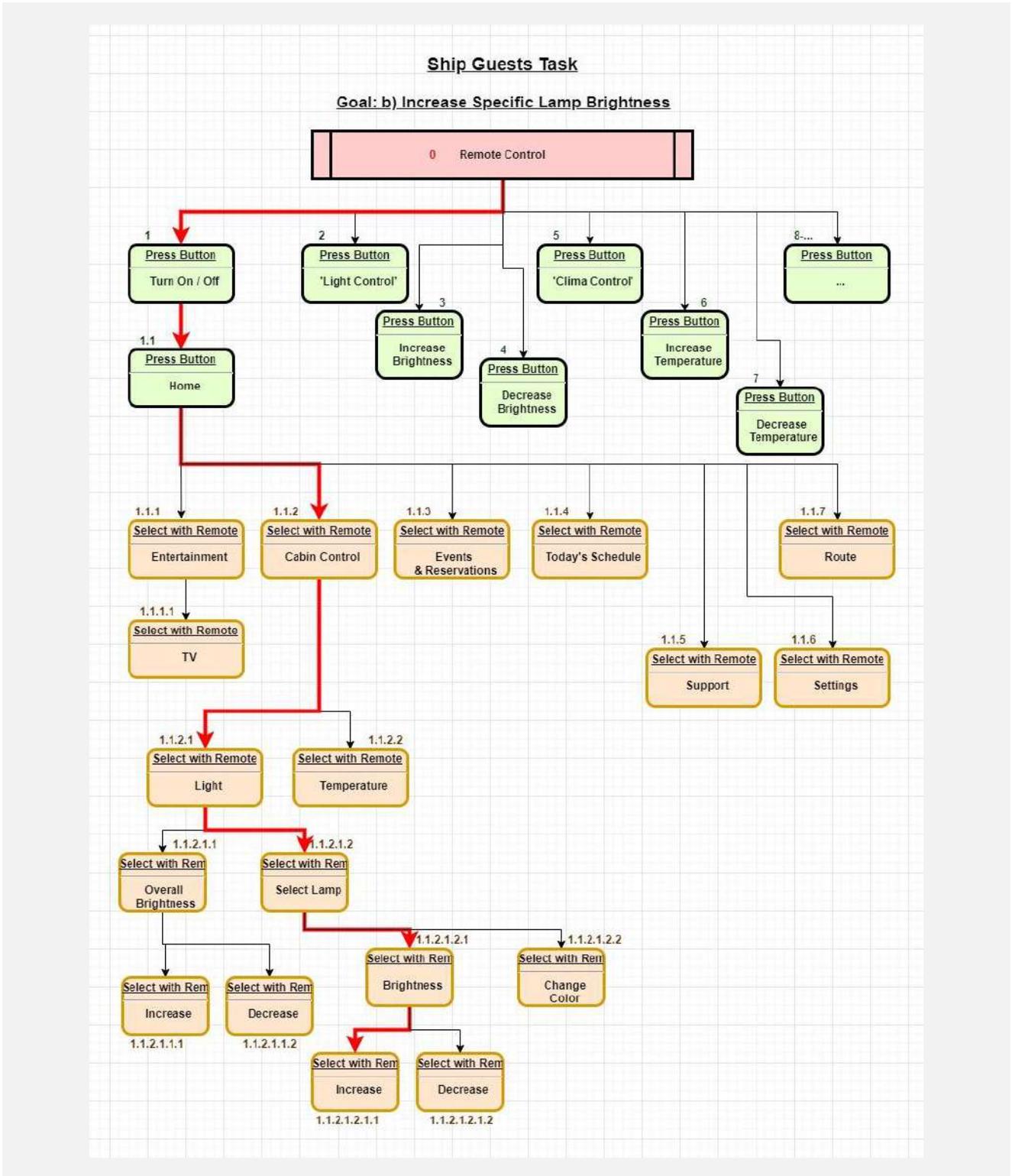
### a) Control TV

Since “Control TV” is very general, I have made the task a little more specific. It should navigate to the TV programme as well as switch through TV channels.

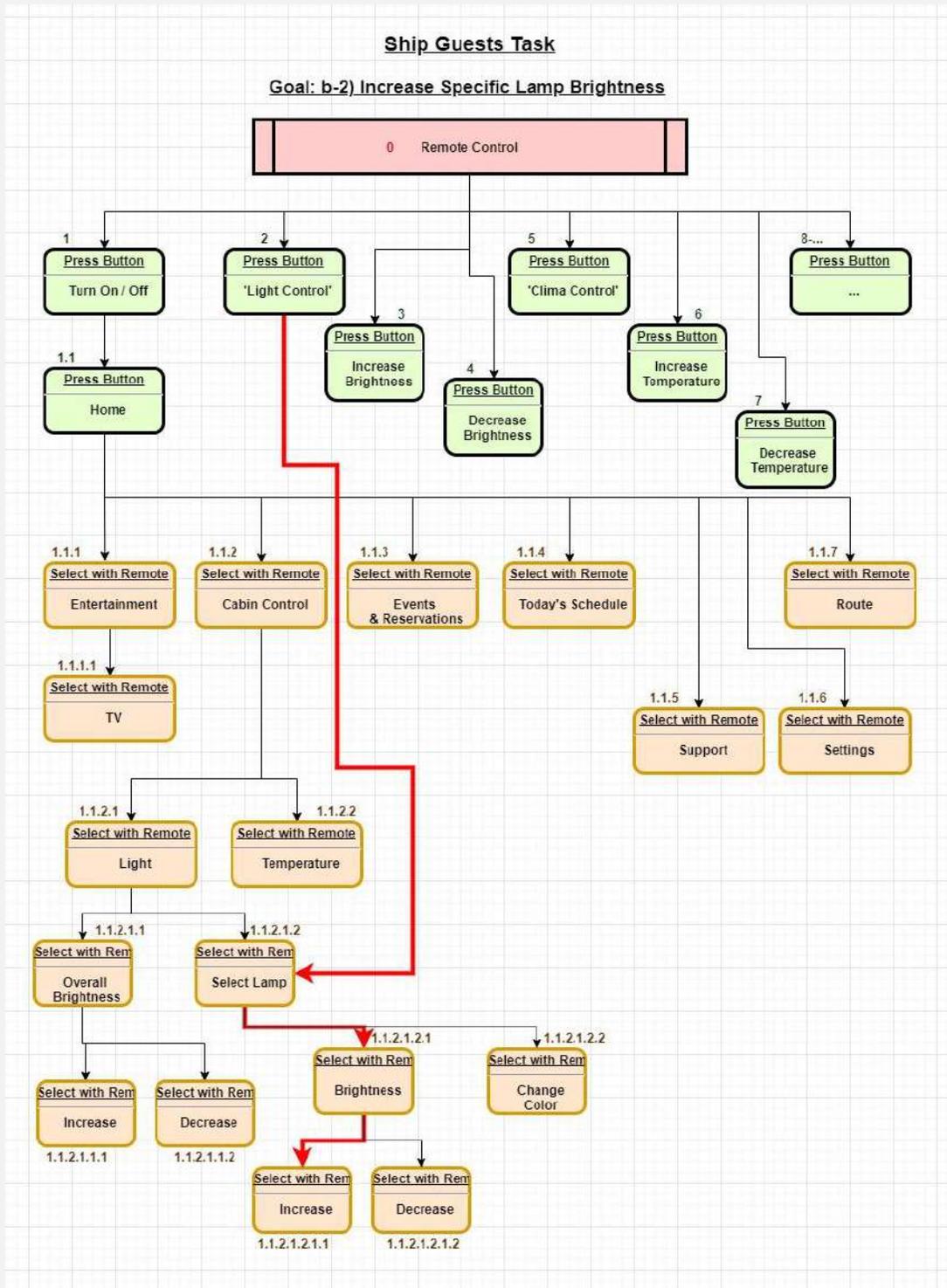


## b) Control cabin lighting

I have also concretised this task. A single lamp is to be made brighter.

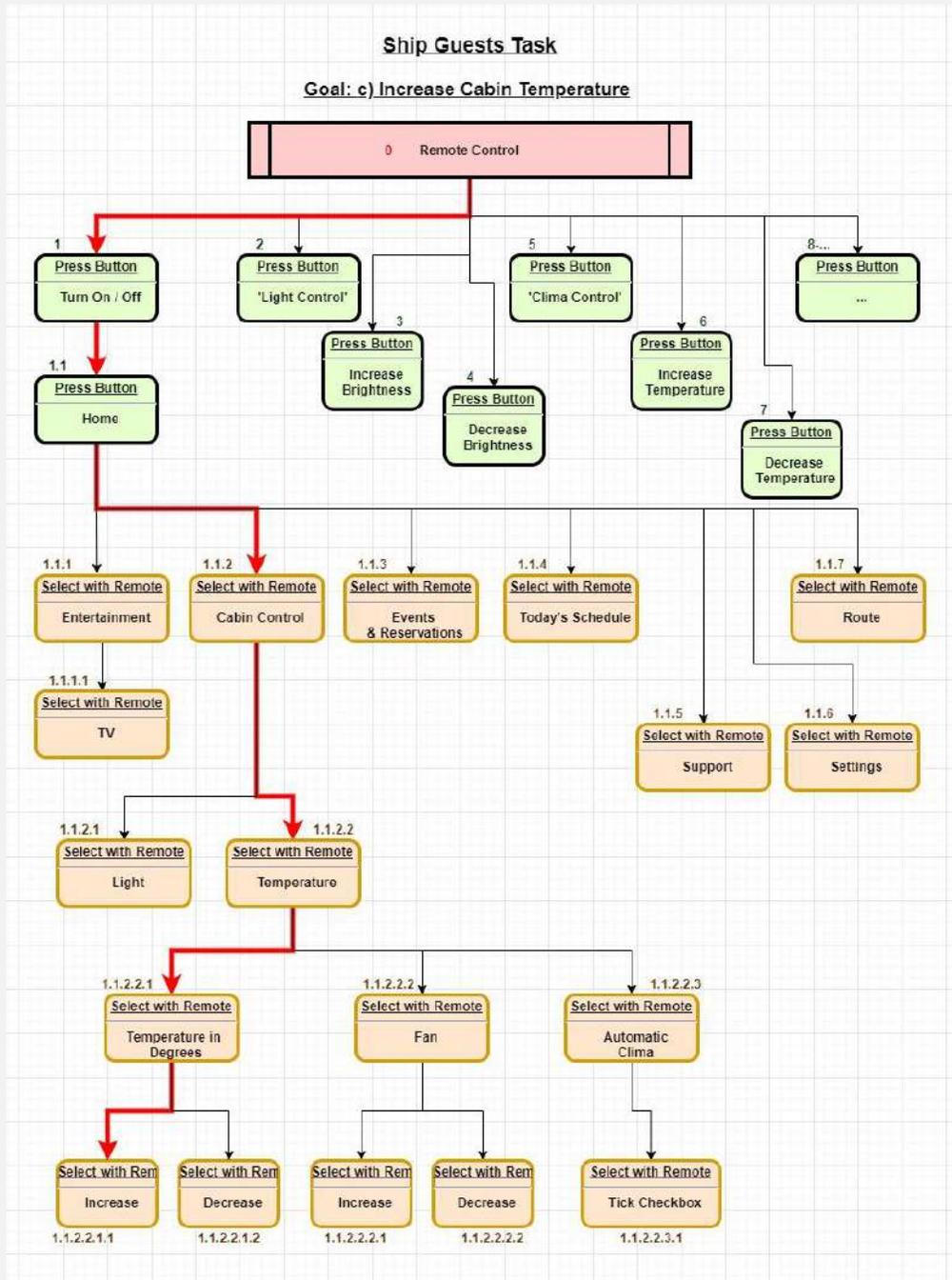


You can also press the "Light Control" button (or Increase icon for global brightness) directly when the TV is still off, so you don't have to navigate through the Dashboard:

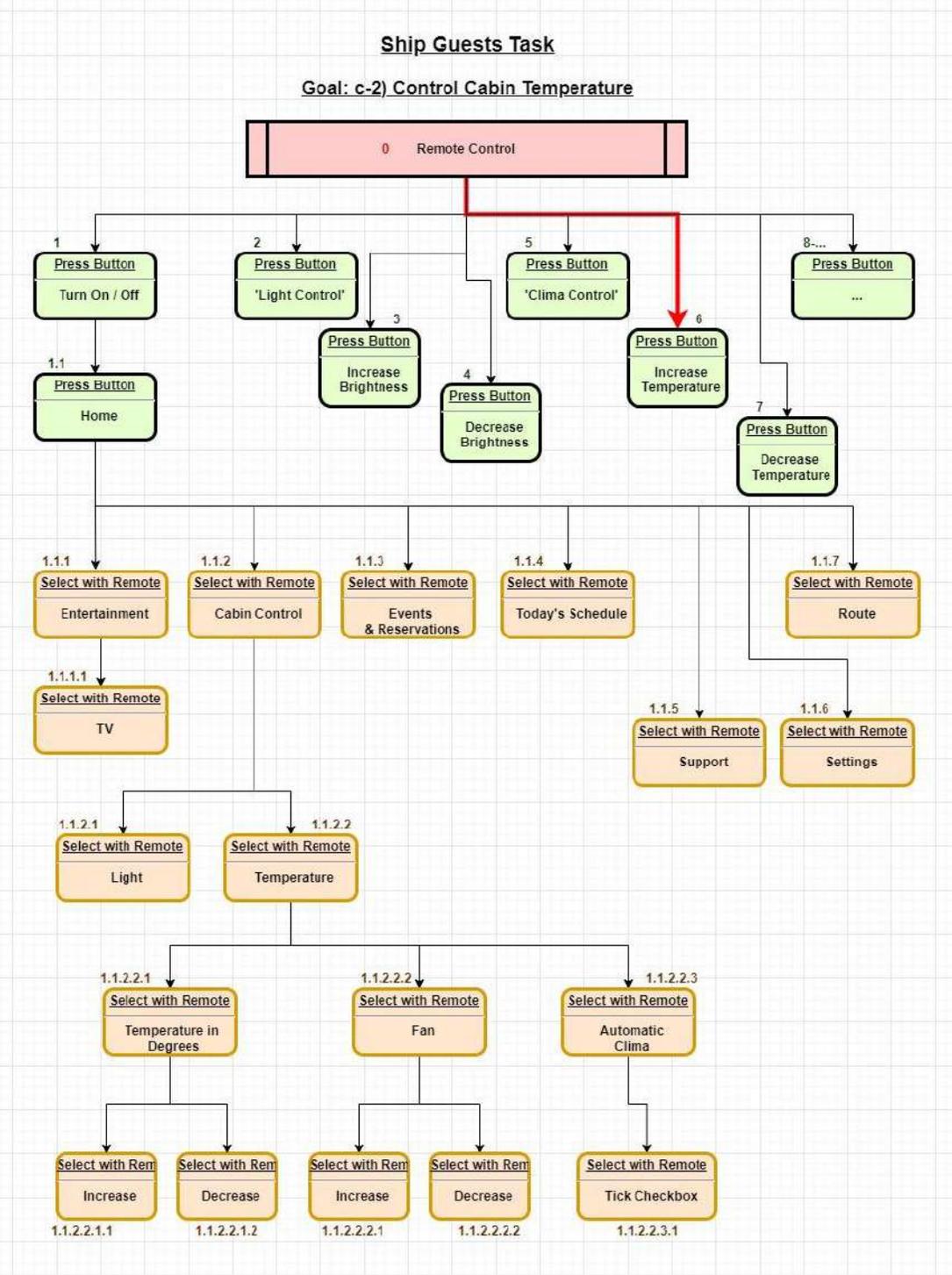


### c) Control cabin temperature

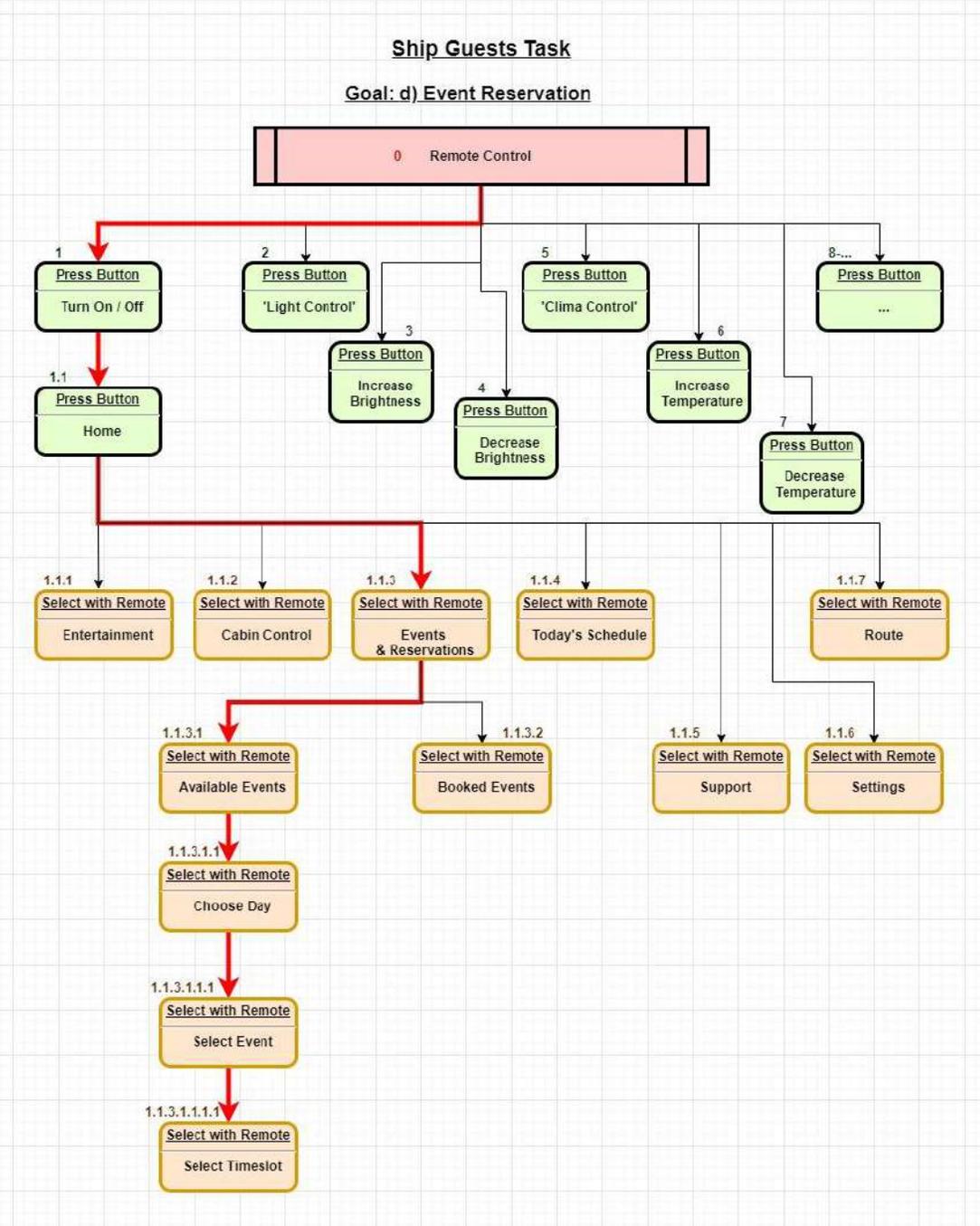
I have also concretised this task. The cabin temperature is to be increased.



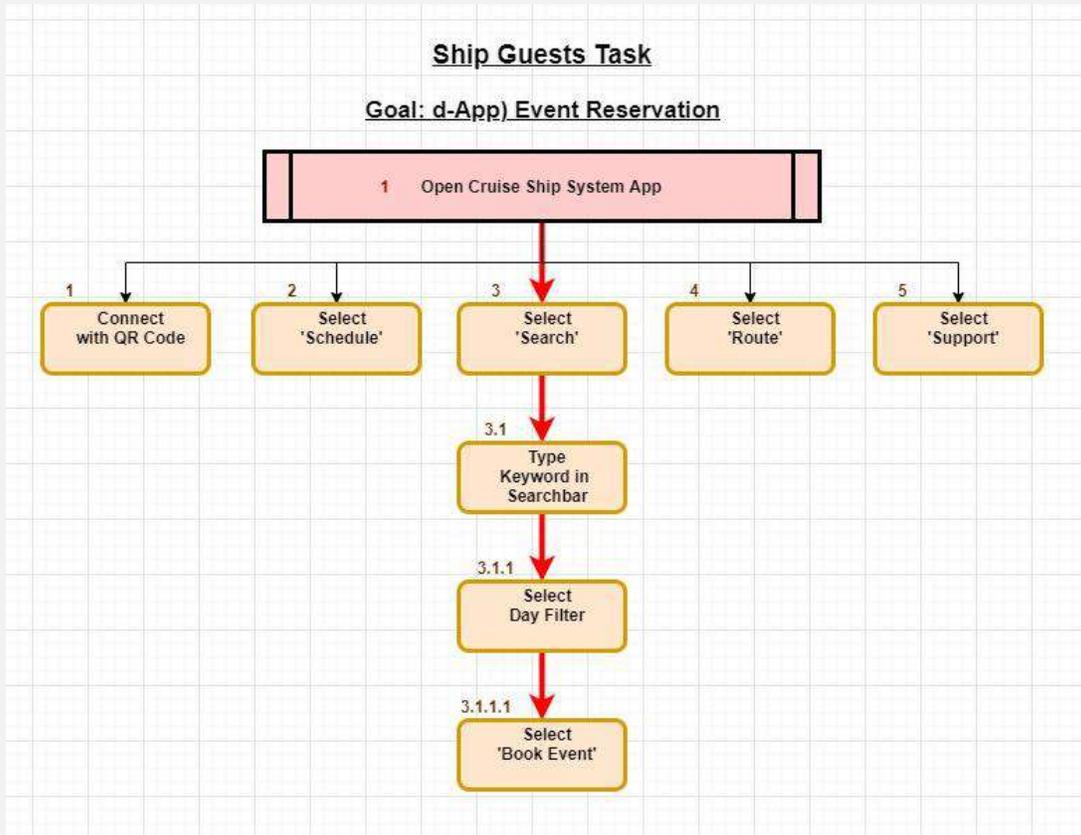
You can also press the button to change the temperature directly when the TV is still off, so you don't have to navigate through the dashboard.:



d) Event reservation



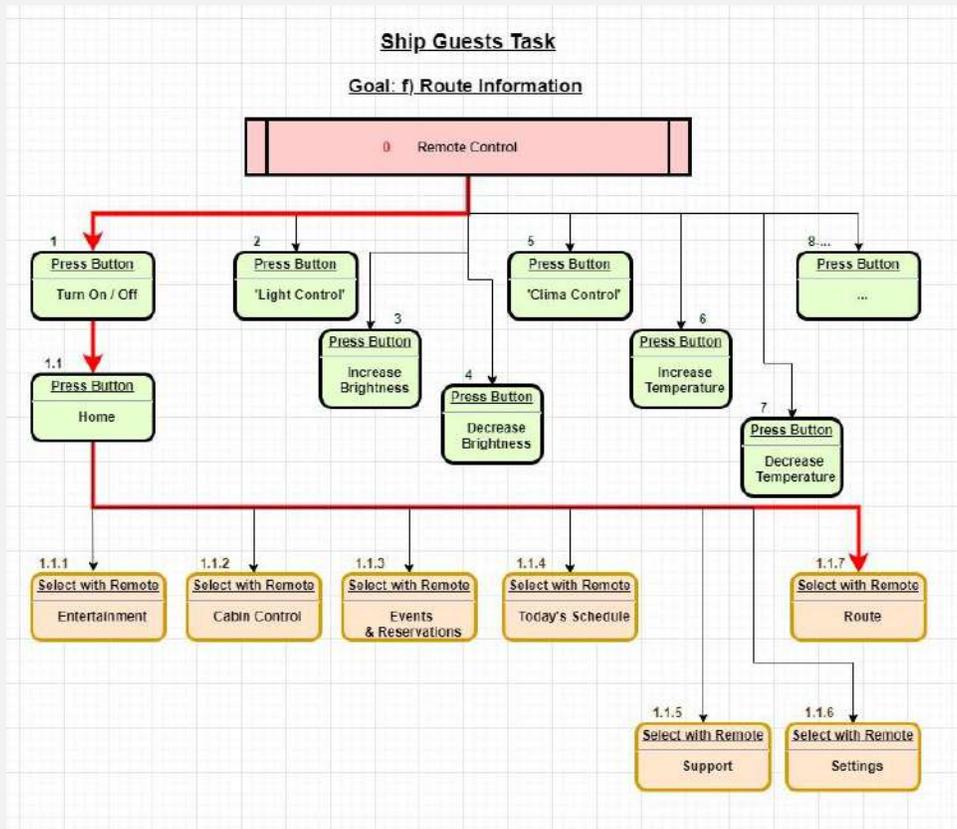
To book events, the app can also be used:



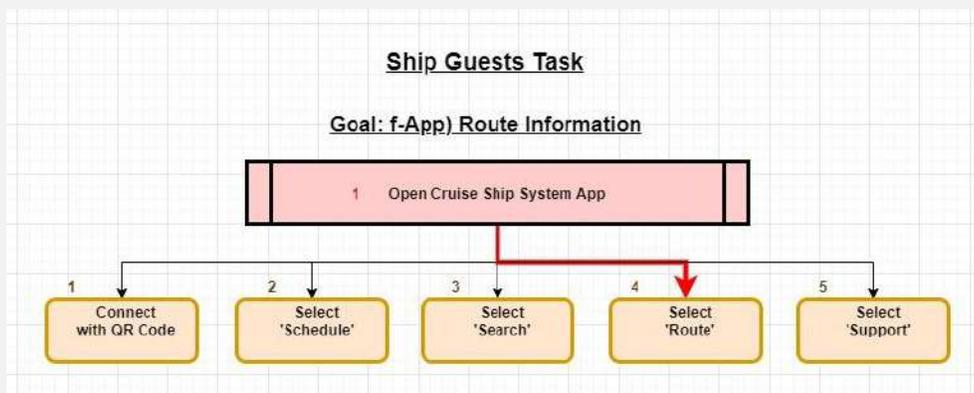
### e) Event & schedule notifications

Notifications do not require an action and therefore do not have a task flow. If you are watching TV, they appear in the upper right corner, if you are not watching TV, the guests receive an acoustic signal, and an inactivity screen is displayed on the TV on which the notification appears.

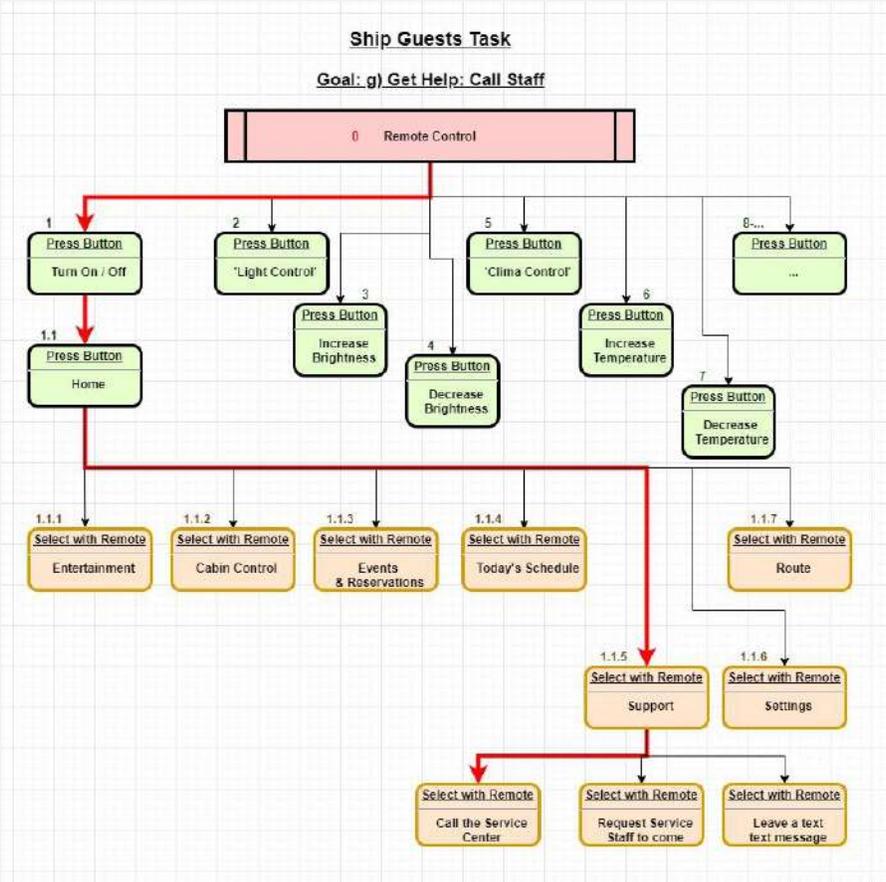
## f) Route Information



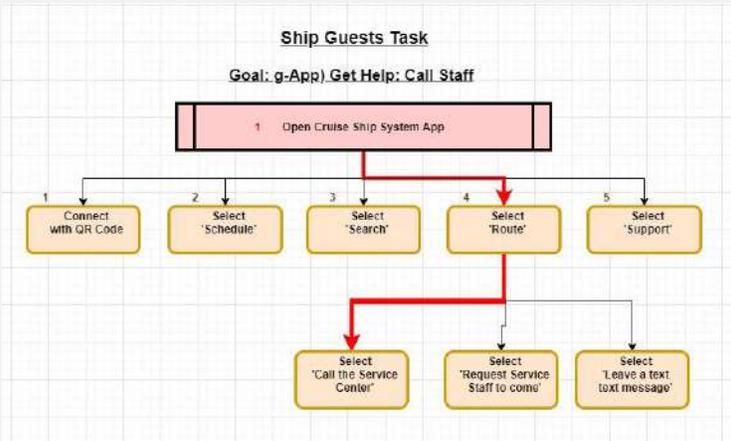
To obtain route information, the app can also be used:



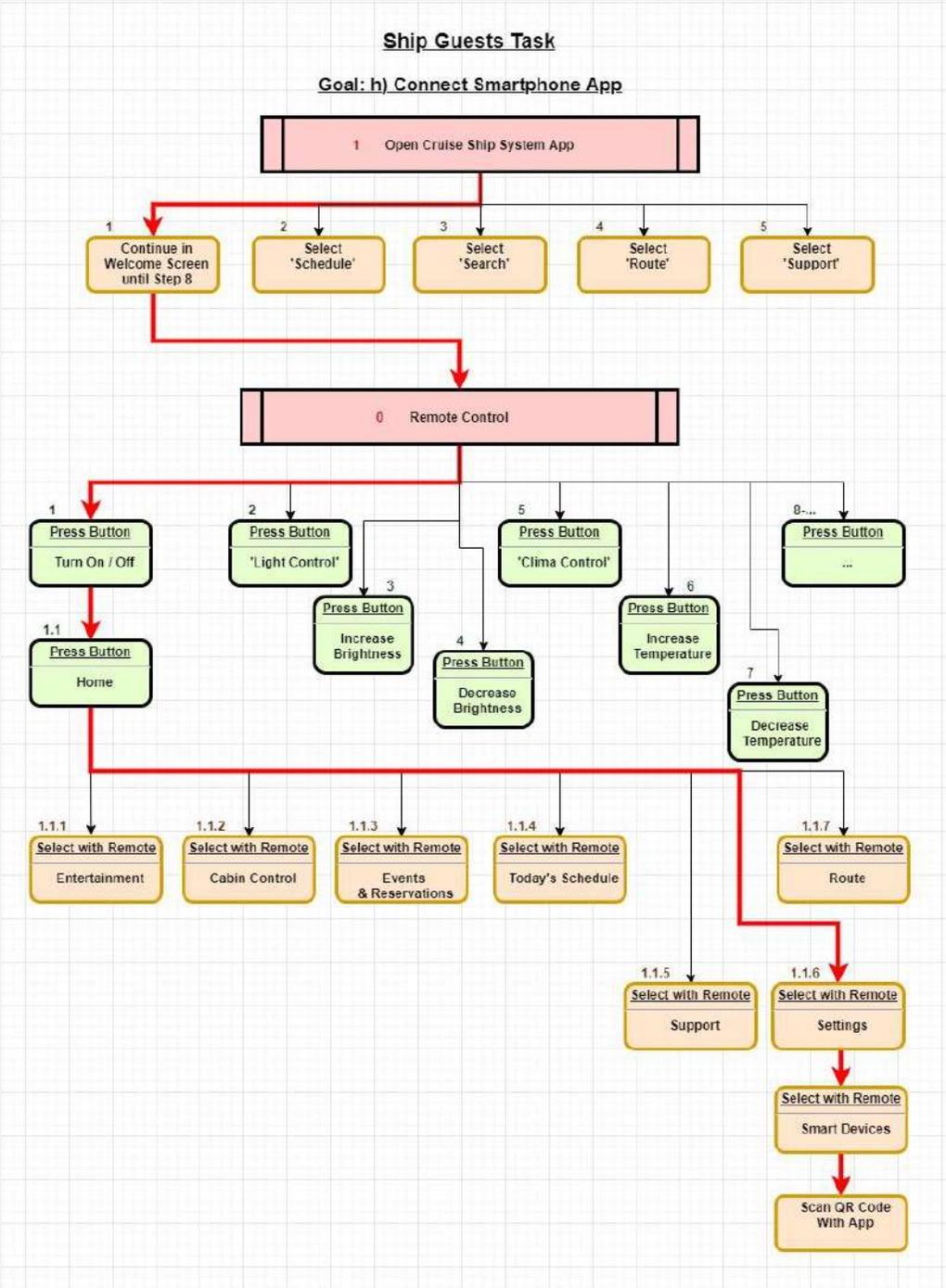
**g) Get Help**



To get help, the app can also be used:



**h) Connect smartphone app (authentication)**

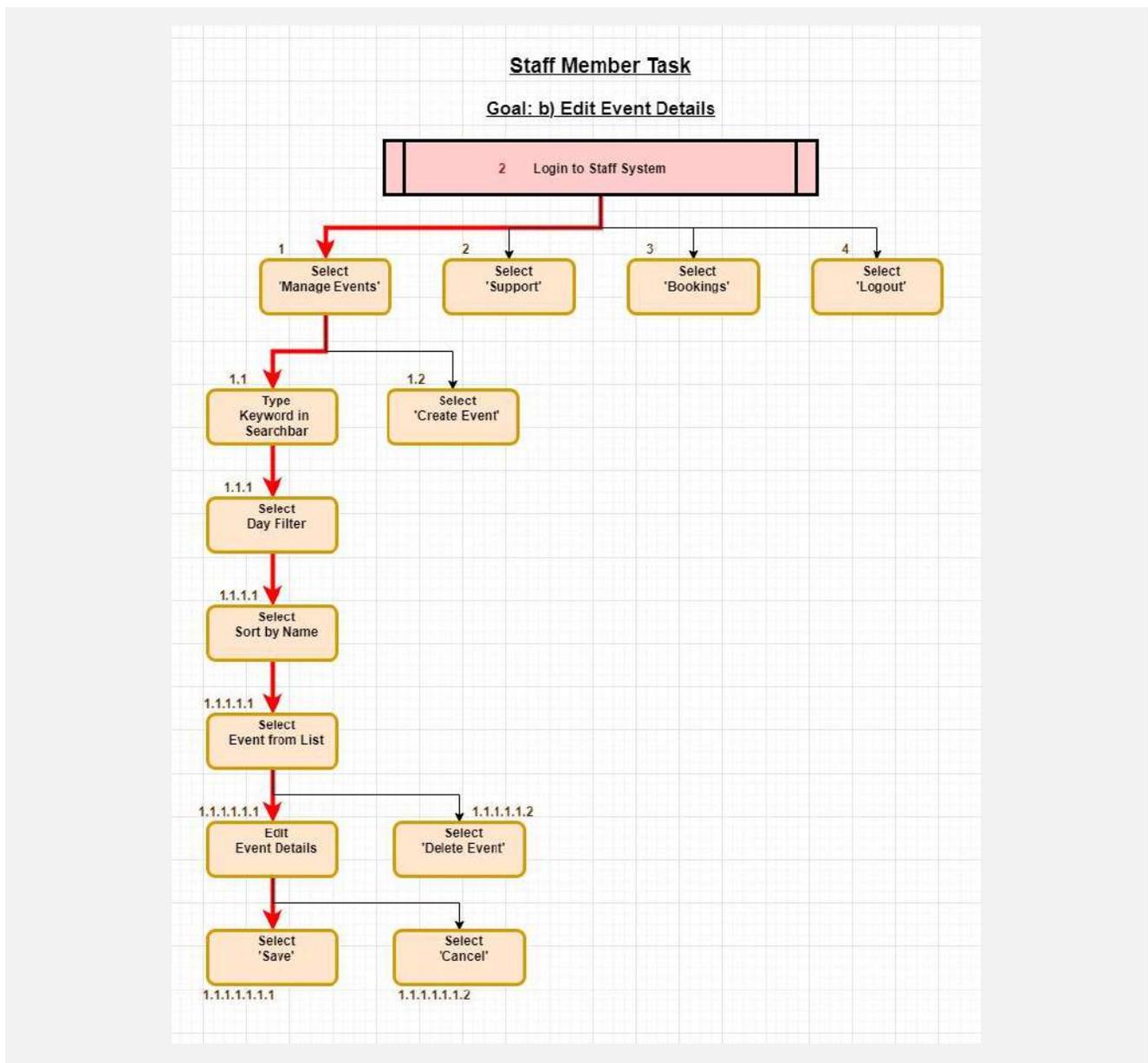


## Staff Member Tasks

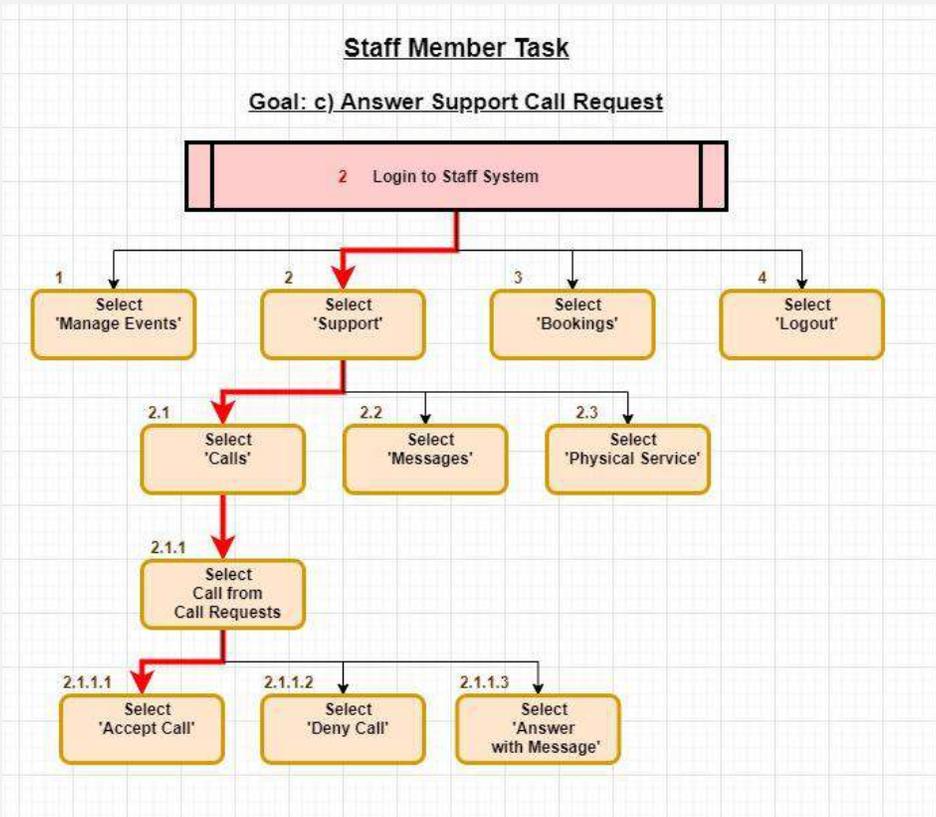
### a) Login to access system

This task does not require much interaction, which would have to be represented by a task flow. Only the name and password must be entered, and the corresponding login button must be clicked.

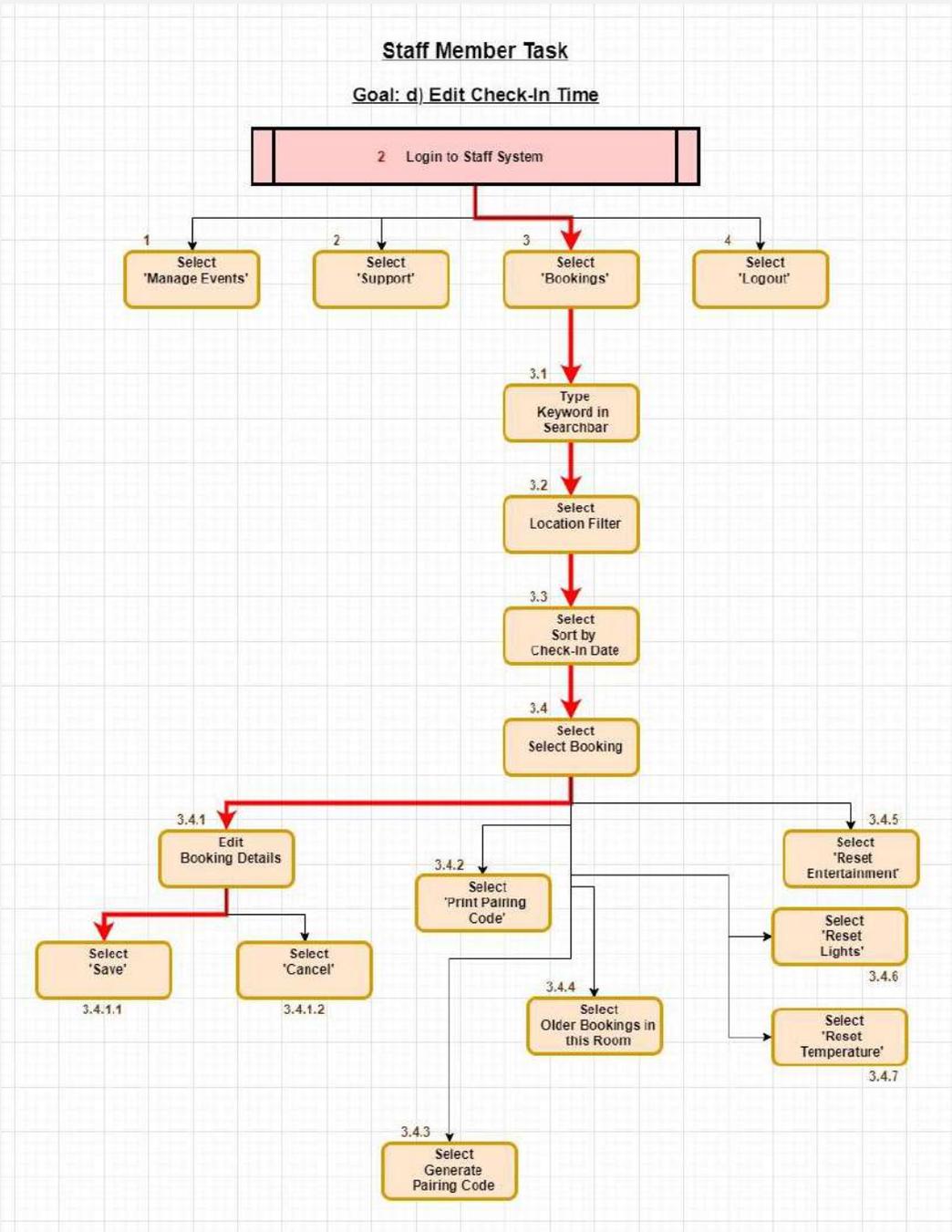
### b) Manage events



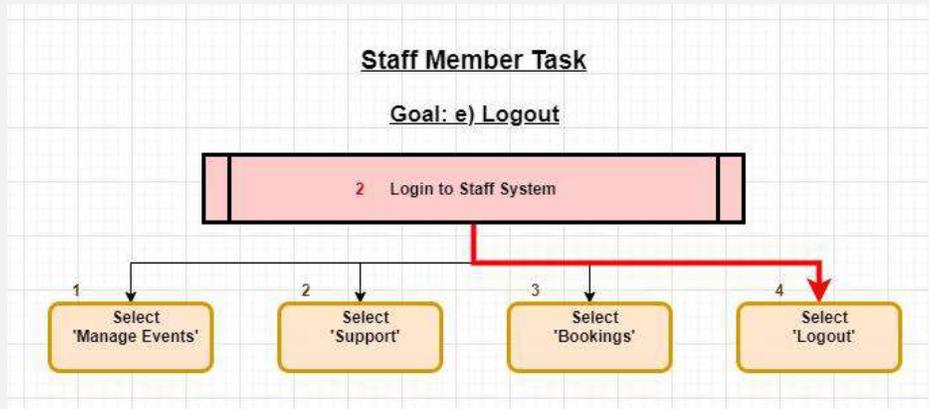
c) Manage support requests



d) Manage cabin check-ins & status



## e) Logout

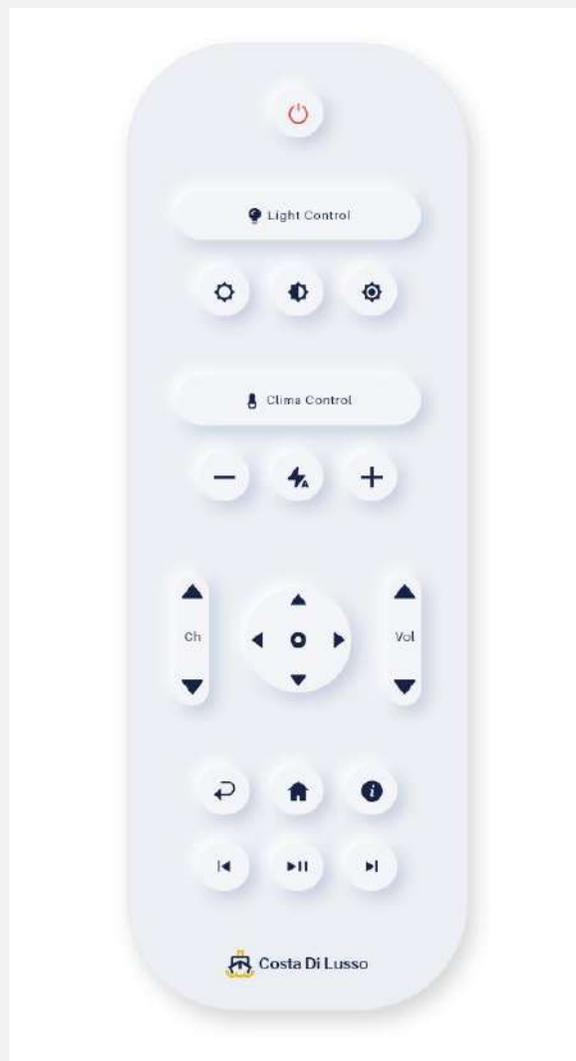


# Screen Design Wireframes

See also: <https://xd.adobe.com/view/b5394d74-917b-4f15-bdcf-b286573496b6-e06a/grid?hints=off>

## TV System

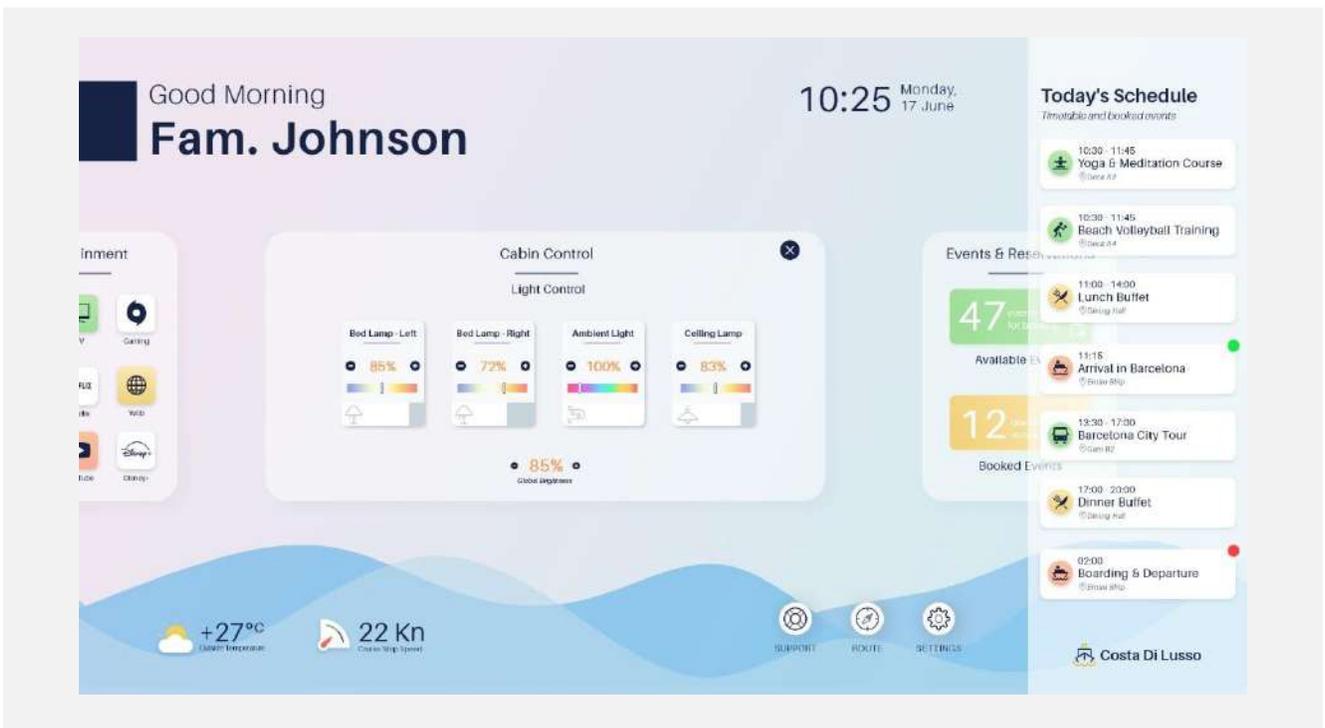
### Remote Control



# Dashboard



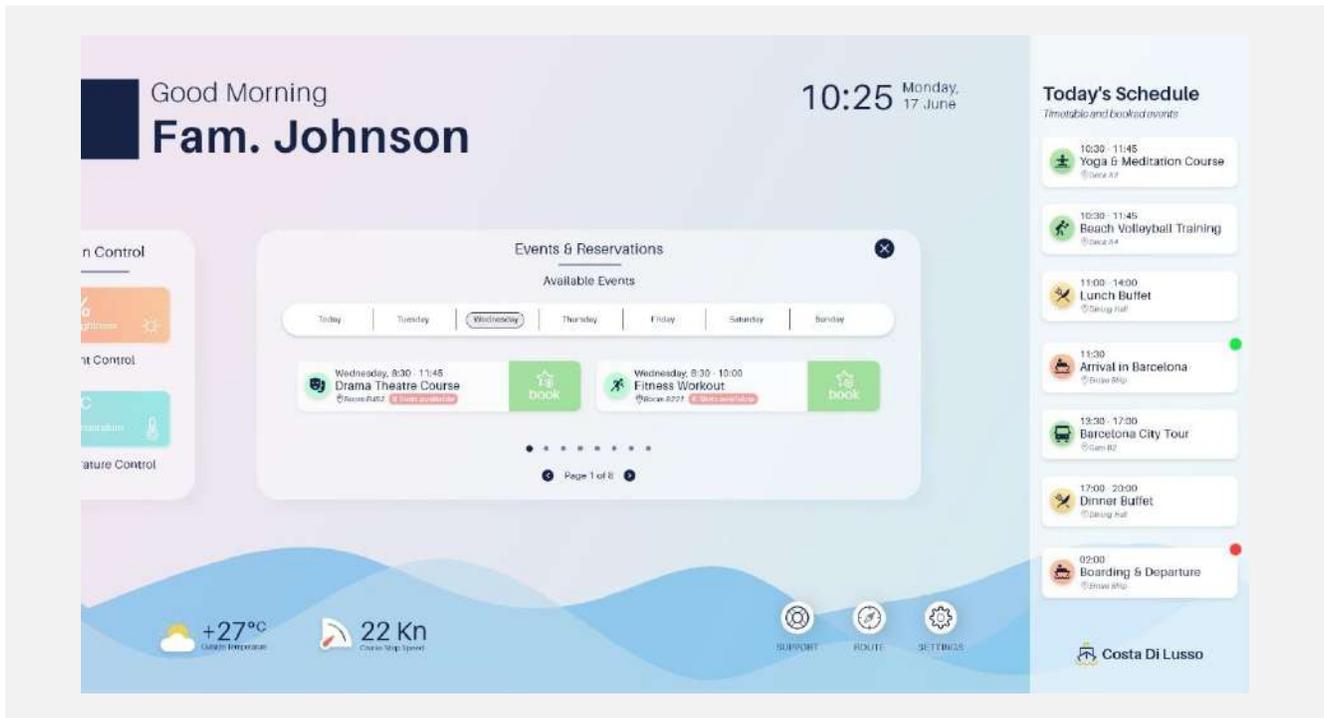
# Light Control



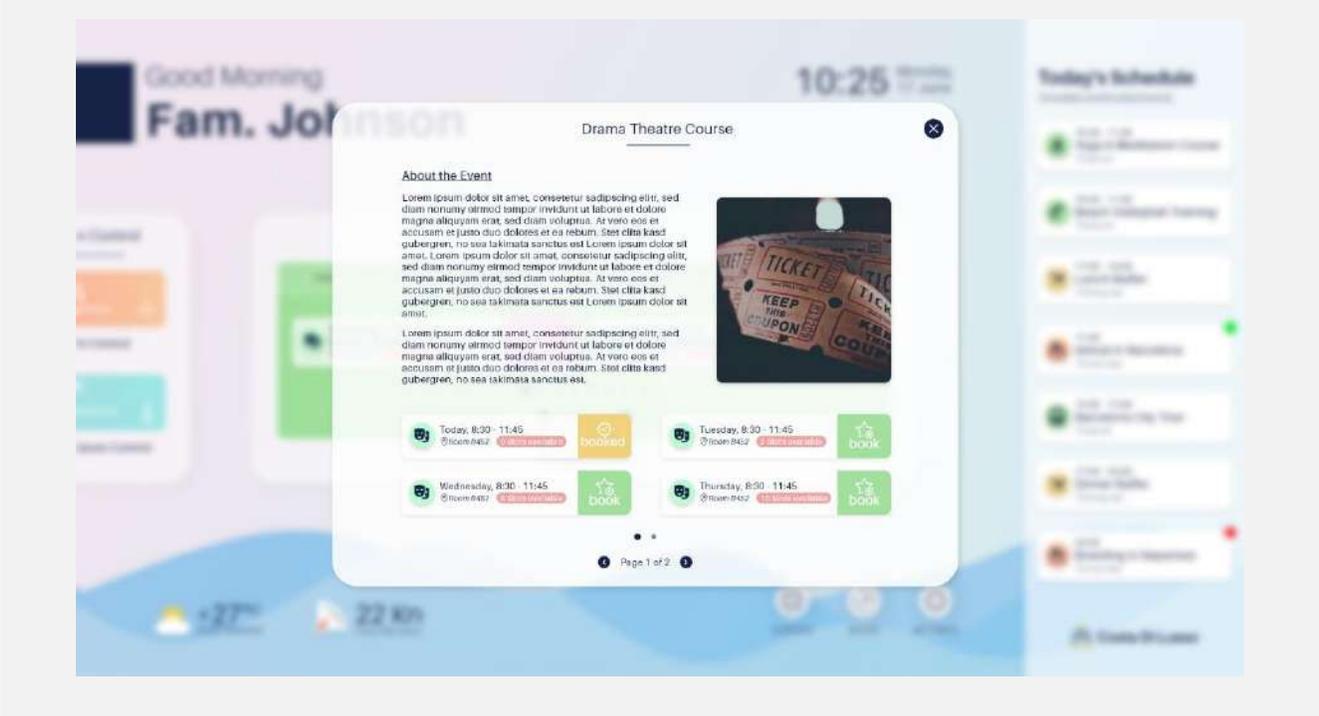
## Temperature Control



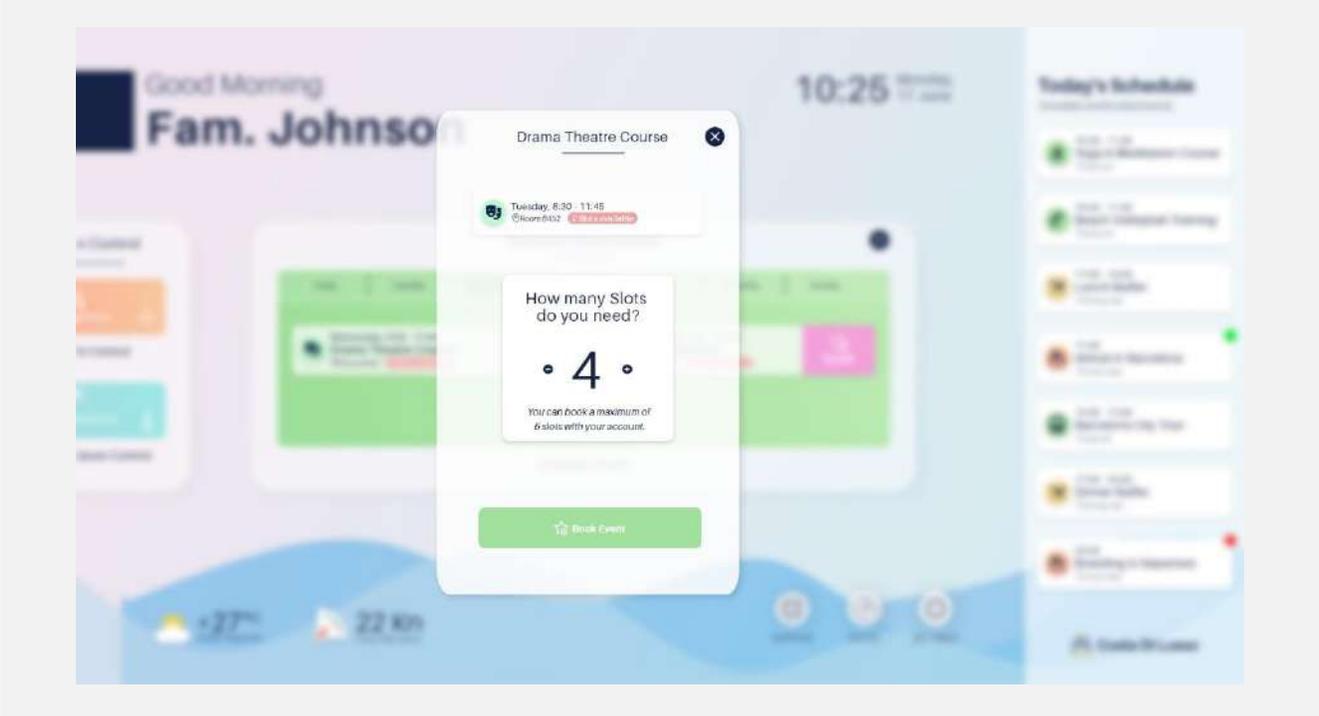
## Available Events



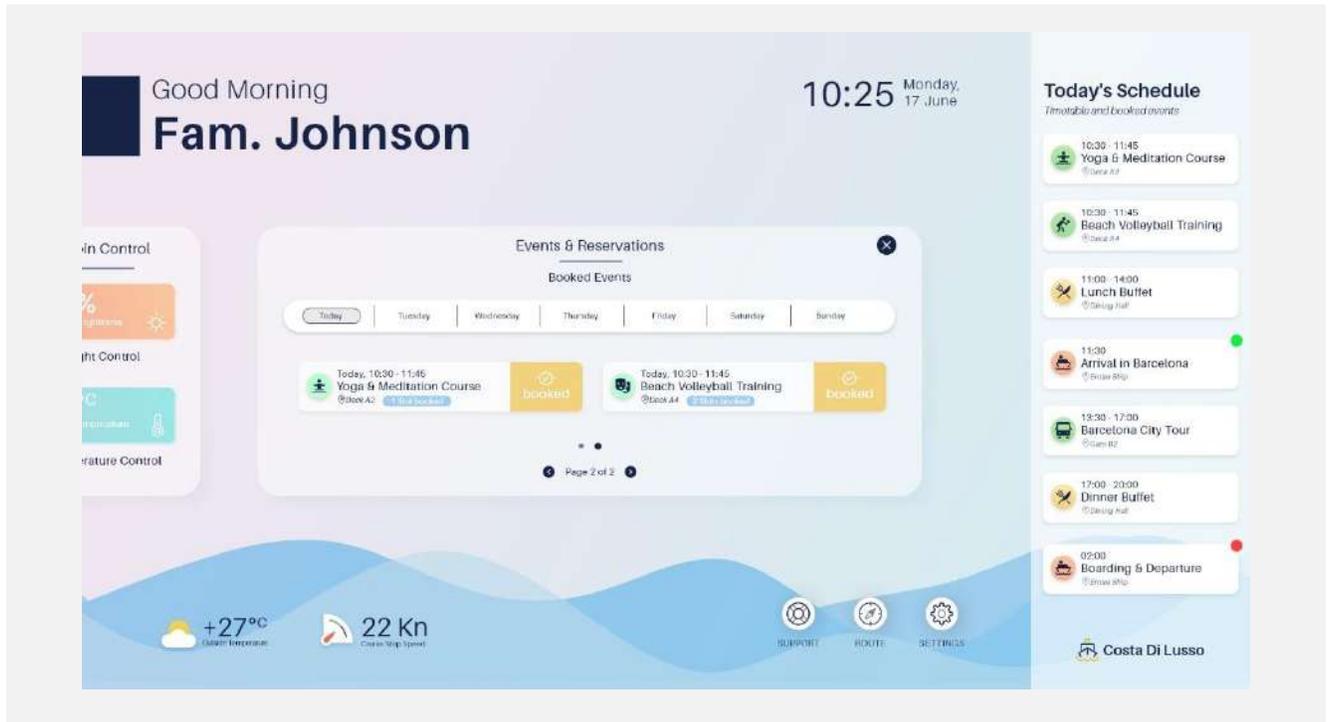
# Event Detail Screen



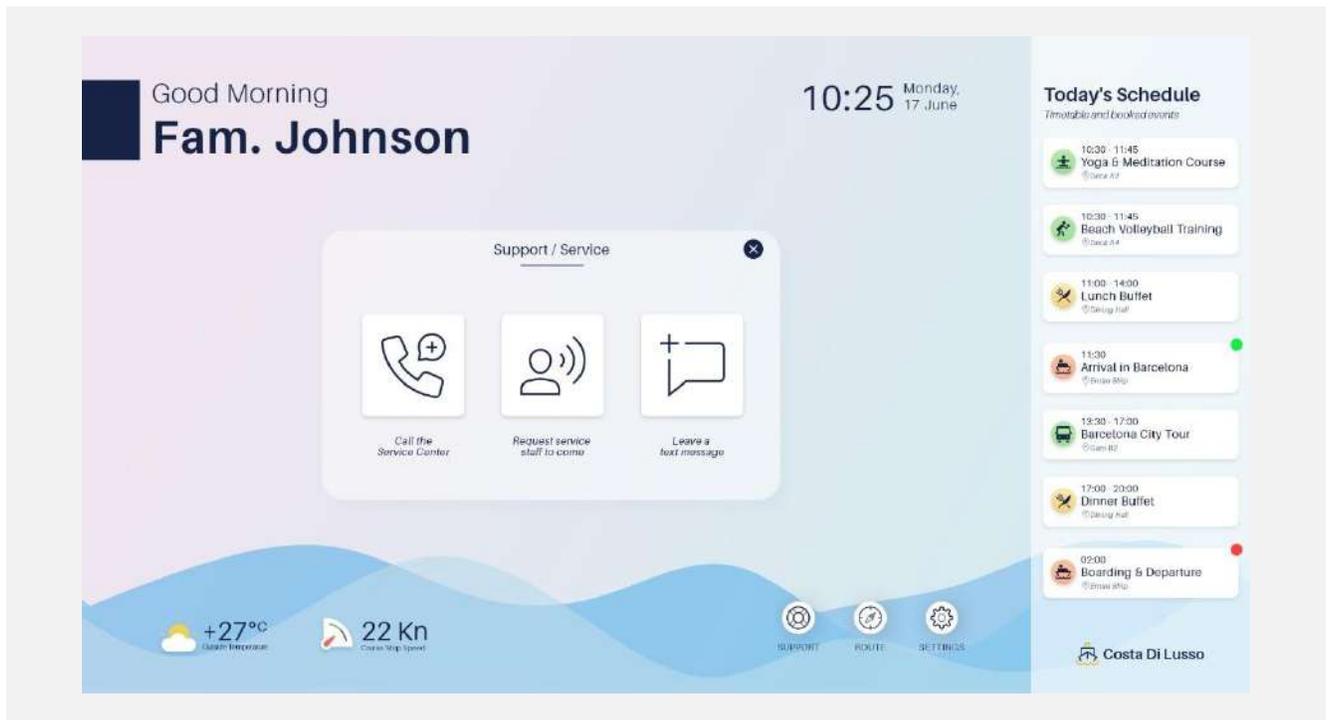
# Booking: Slot Amount Selection



## Booked Events



## Support



## Route Information

Good Morning  
**Fam. Johnson**

10:25 Monday, 17 June

### Current Route

- Ajaccio **✈**  
Arrival Air 17:10  
Departure 08:10:00
- Barcelona **✈**  
Arrival Air 11:30  
Departure 06:00:00
- Valencia **✈**  
Arrival Air 09:00  
Departure 04:45:00

+27°C  
Health Temperature

22 Kn  
Current Ship Speed

SUPPORT ROUTE SETTINGS

### Today's Schedule

*Timetable and booked events*

- 10:30 - 11:45  
Yoga & Meditation Course  
📍 Deck A7
- 10:30 - 11:45  
Beach Volleyball Training  
📍 Deck 14
- 11:00 - 14:00  
Lunch Buffet  
📍 Dining Hall
- 11:30  
Arrival in Barcelona  
📍 Cruise Ship
- 13:30 - 17:00  
Barcelona City Tour  
📍 Deck B2
- 17:00 - 20:00  
Dinner Buffet  
📍 Dining Hall
- 02:00  
Boarding & Departure  
📍 Cruise Ship

Costa Di Lusso

## Settings / Connect Smart Device

Good Morning  
**Fam. Johnson**

10:25 Monday, 17 June

### System Settings

- General
- Account
- Notifications
- Payment
- Appearance
- Smart Devices

#### Connect Smart Device

Use the QR Code on the right or the Link to connect your device with the System.  
We will receive notifications for delayed Arrivals or Departures as well as information for your Events & Reservations. Please contact us if you need any help.



[www.costa-di-lusso.com](http://www.costa-di-lusso.com)

+27°C  
Health Temperature

22 Kn  
Current Ship Speed

SUPPORT ROUTE SETTINGS

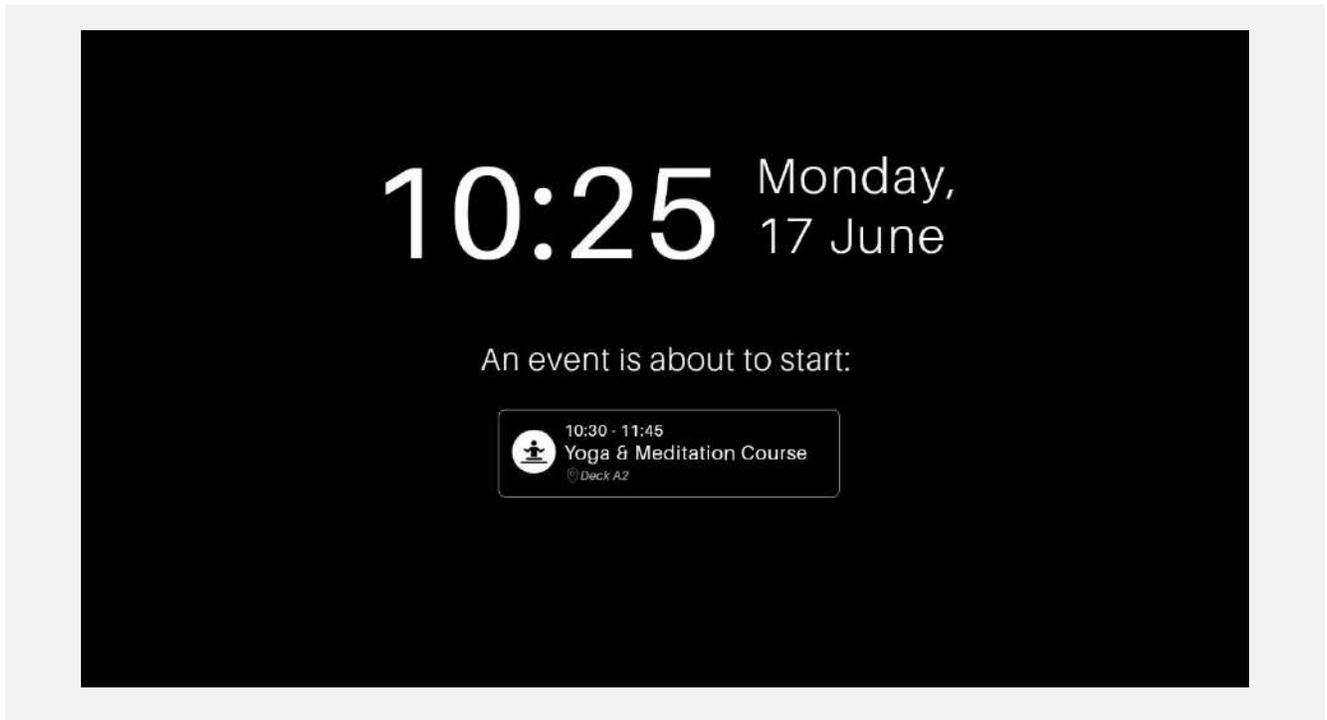
### Today's Schedule

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Barcelona City Tour  
📍 Deck B2
- 17:00 - 20:00  
Dinner Buffet  
📍 Dining Hall
- 02:00  
Boarding & Departure  
📍 Cruise Ship

Costa Di Lusso

## Inactivity Screen – Notification PopUp



## Inactivity Screen – Brightness Change PopUp



## Inactivity Screen – Temperature Change PopUp

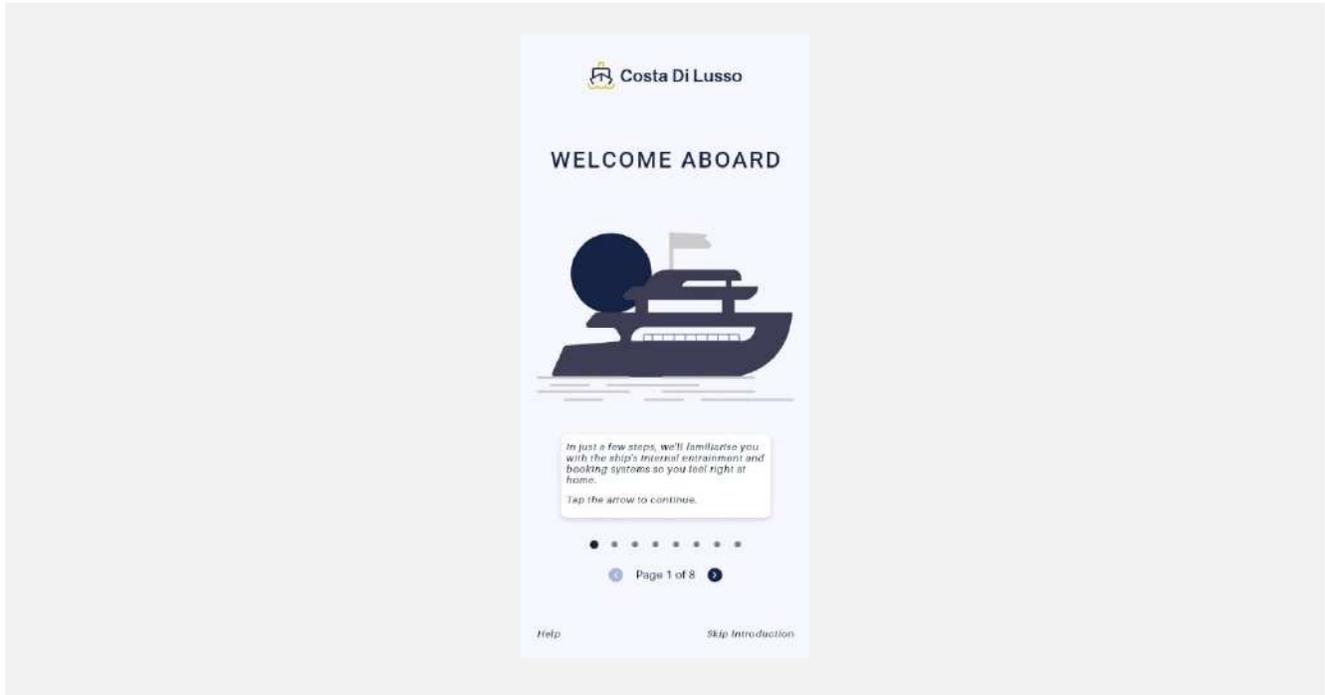


## Notification PopUp – while TV is running

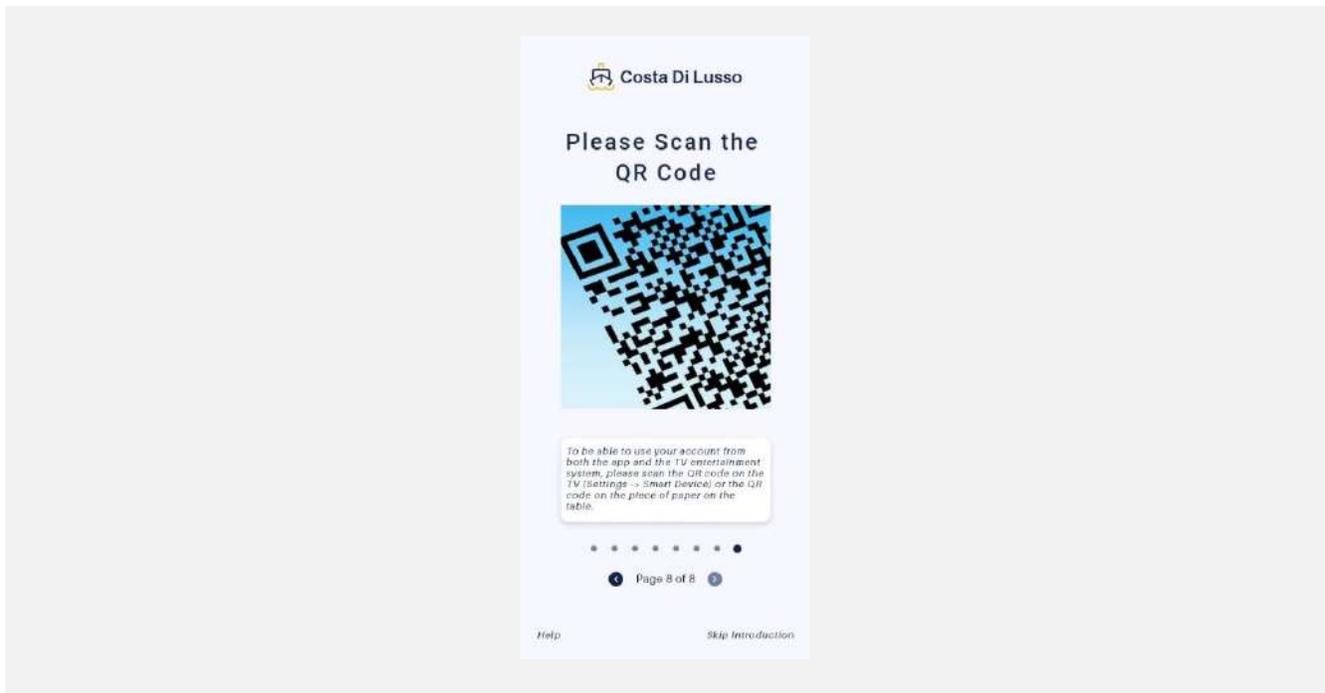


# App

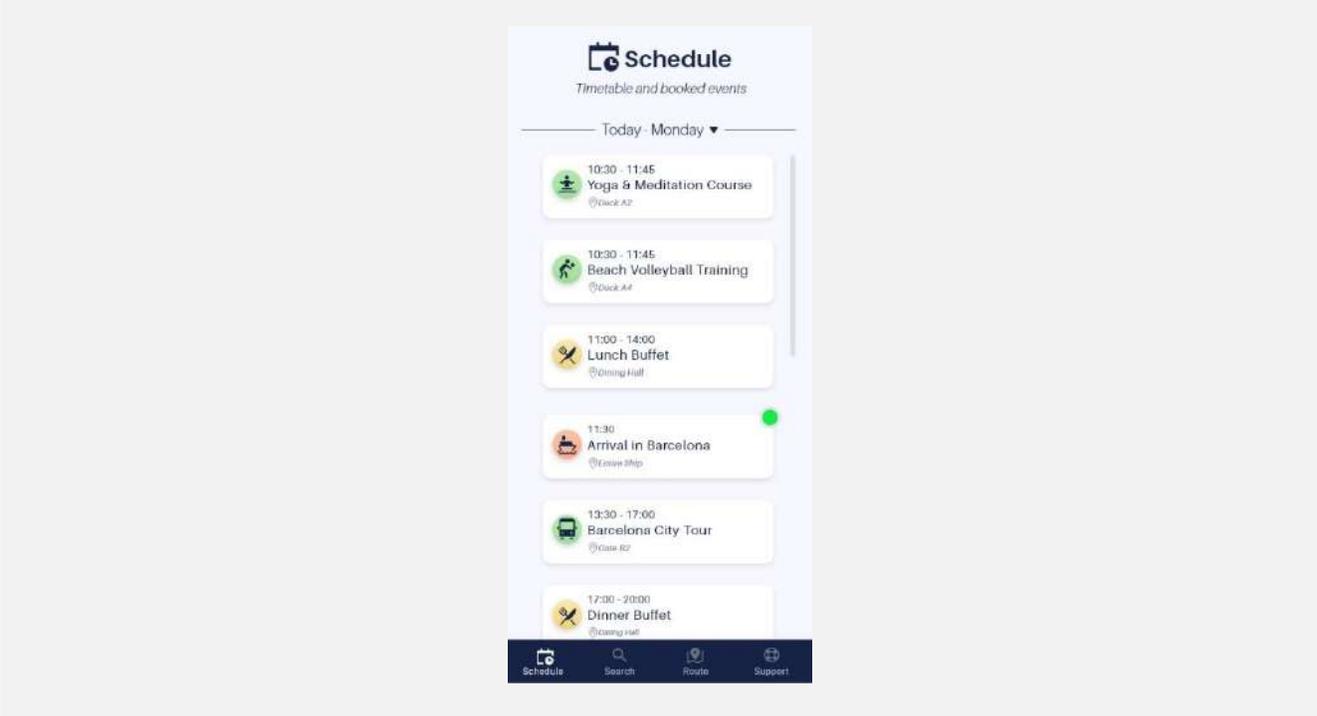
## Introduction Screen



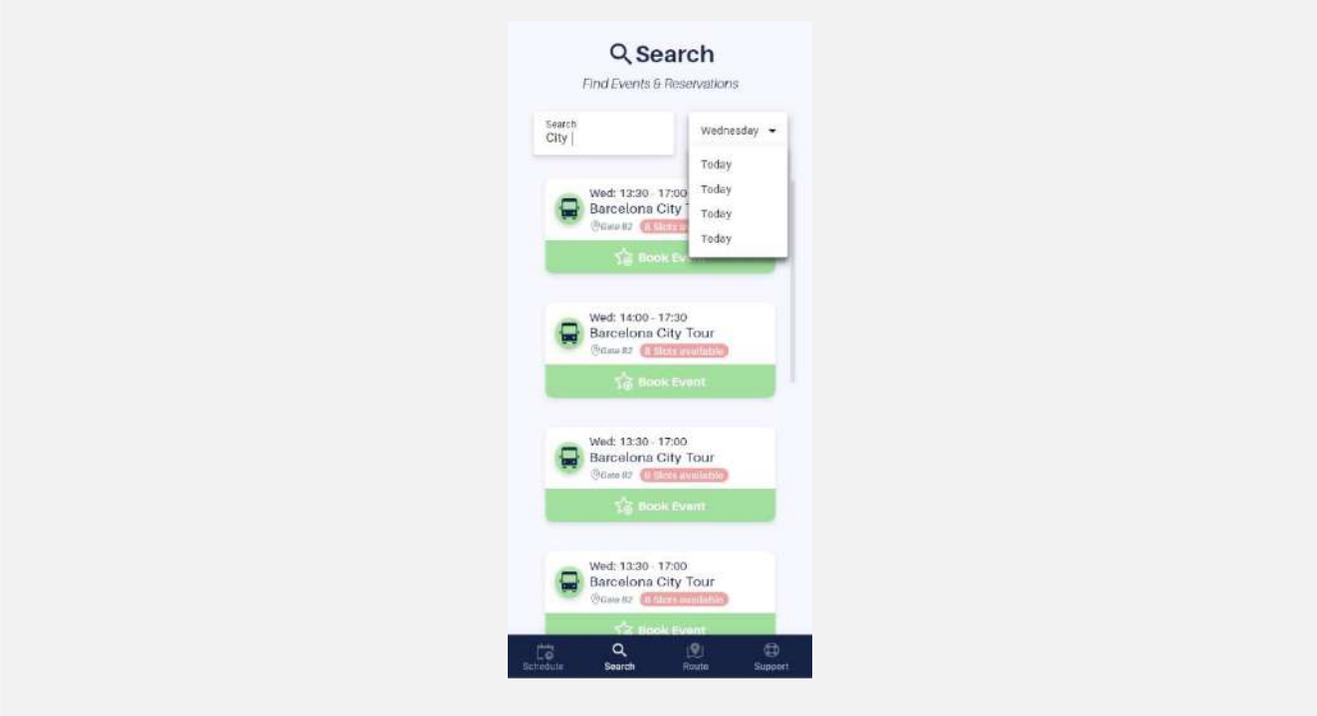
## Connect with QR Code



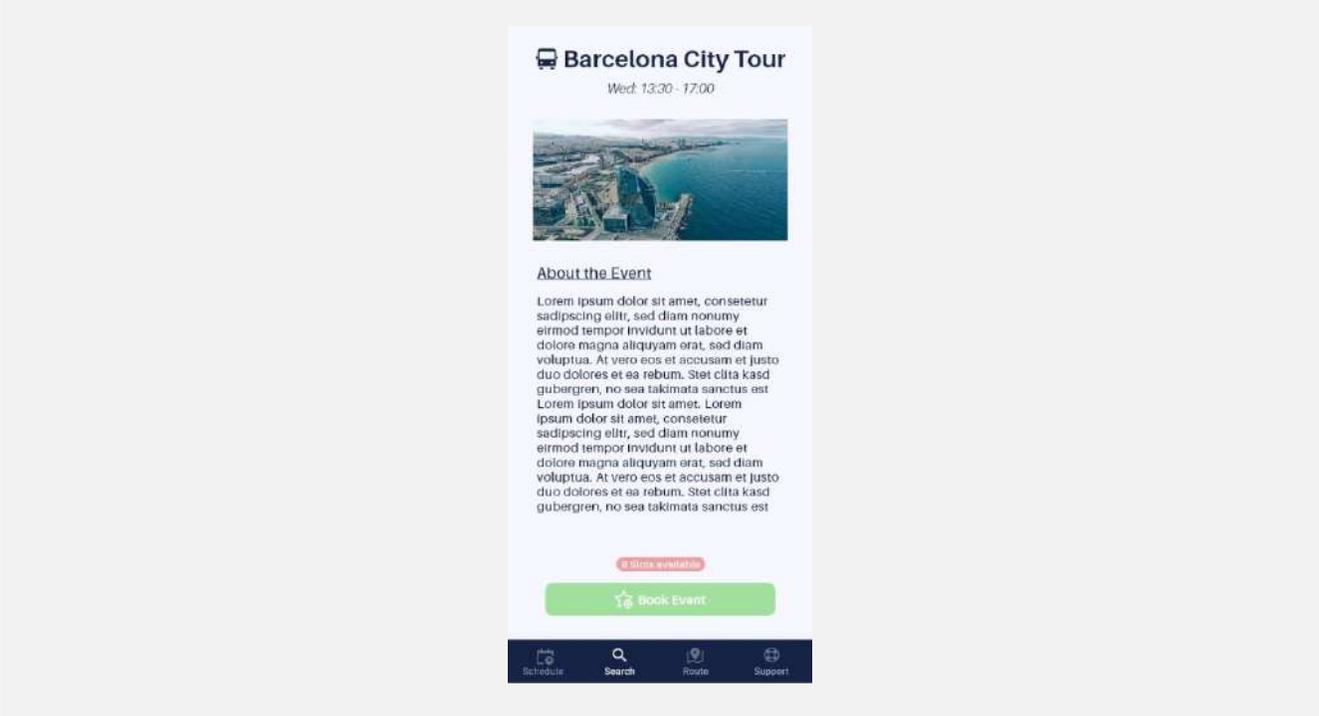
# Schedule & Booked Events



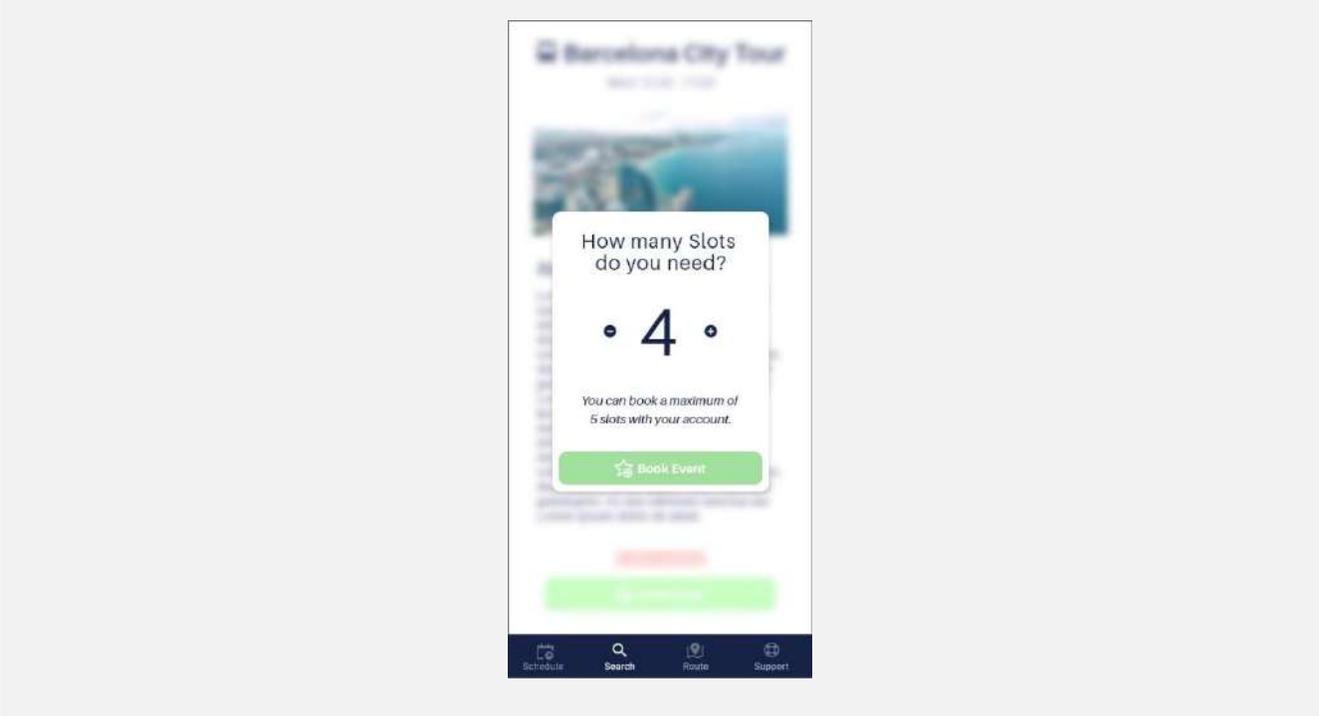
# Event Search & Booking Functionality



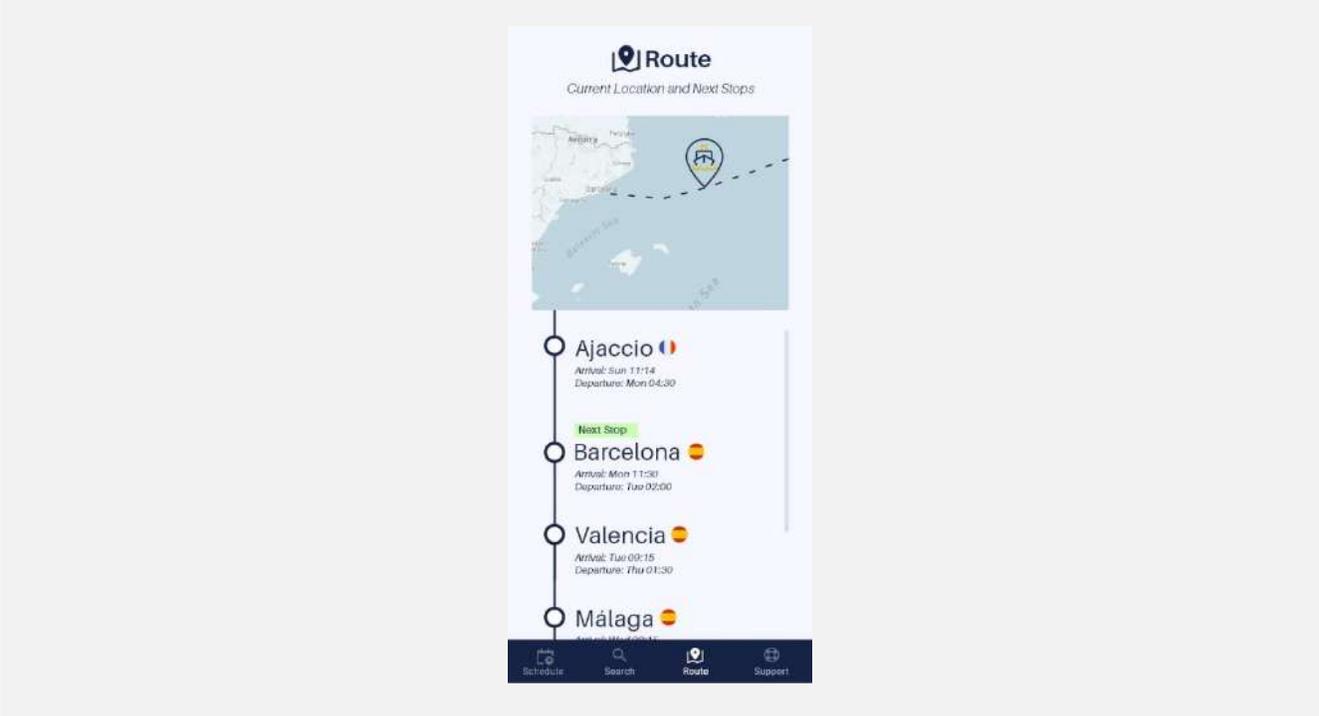
# Event Detail Screen



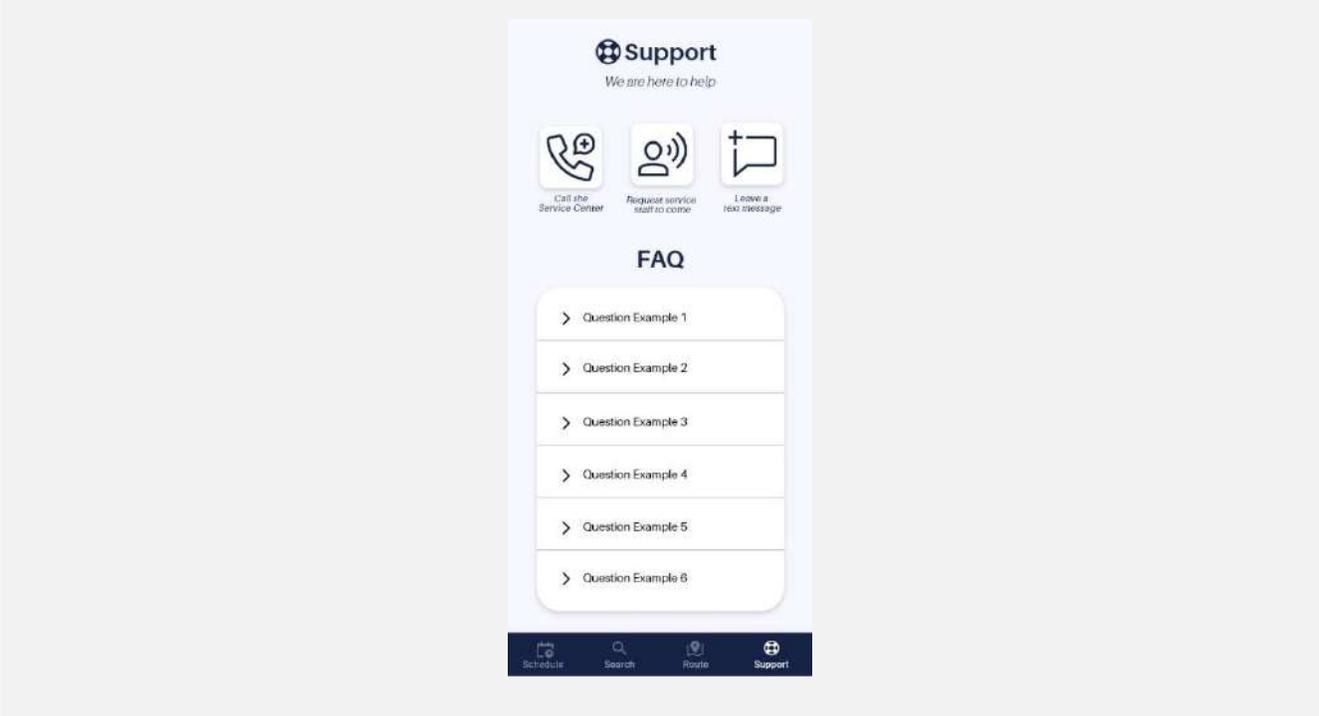
# Event Booking – Select Amount Screen



# Route Information

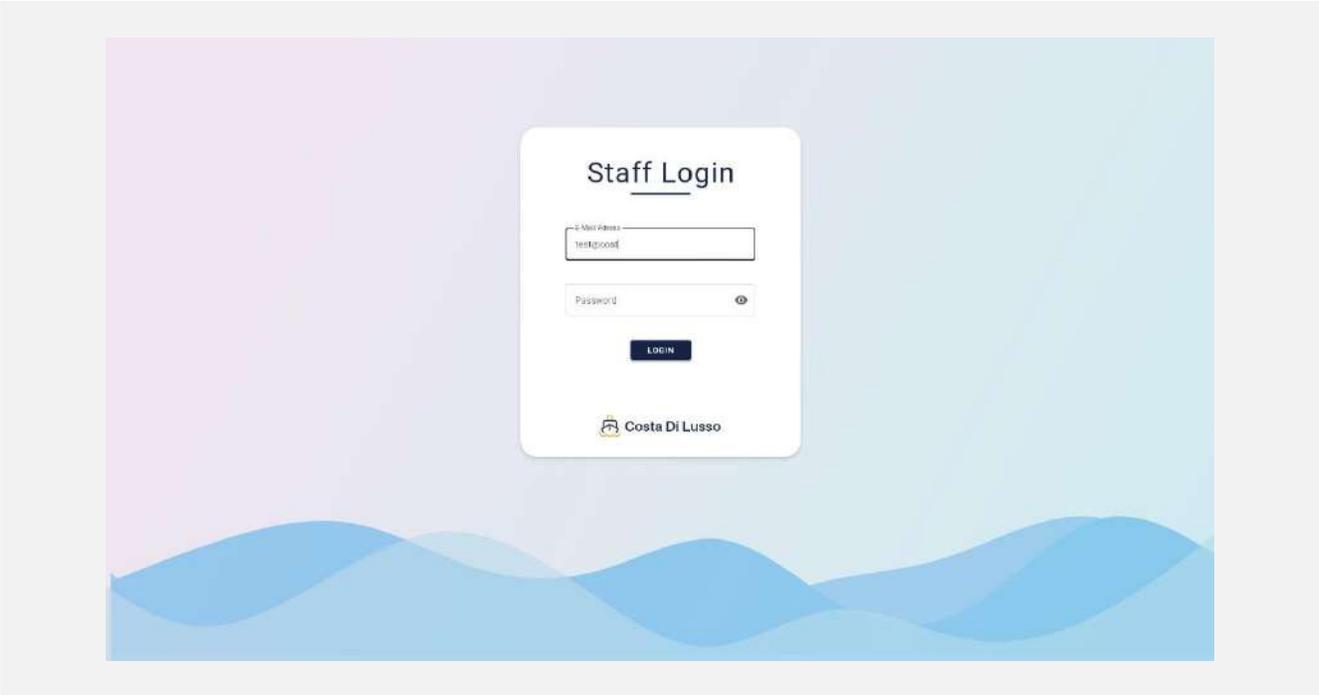


# Support

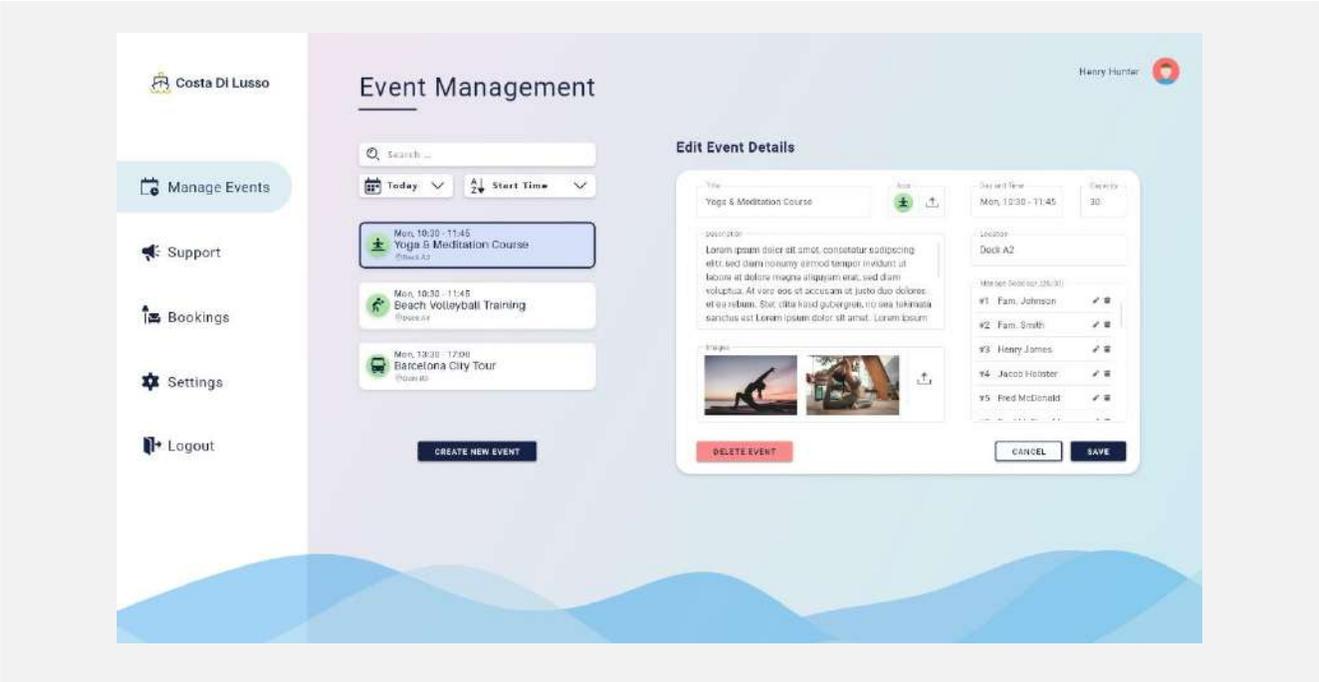


# Management Backend

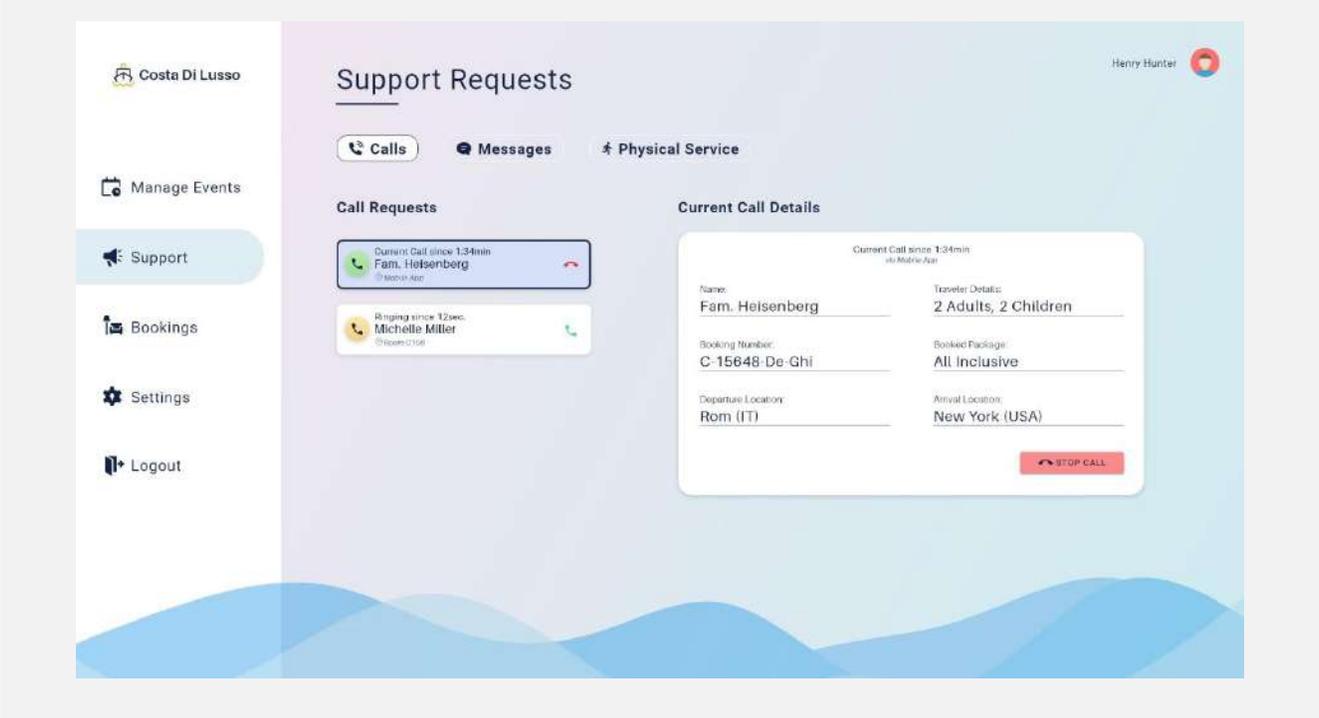
## Login Screen



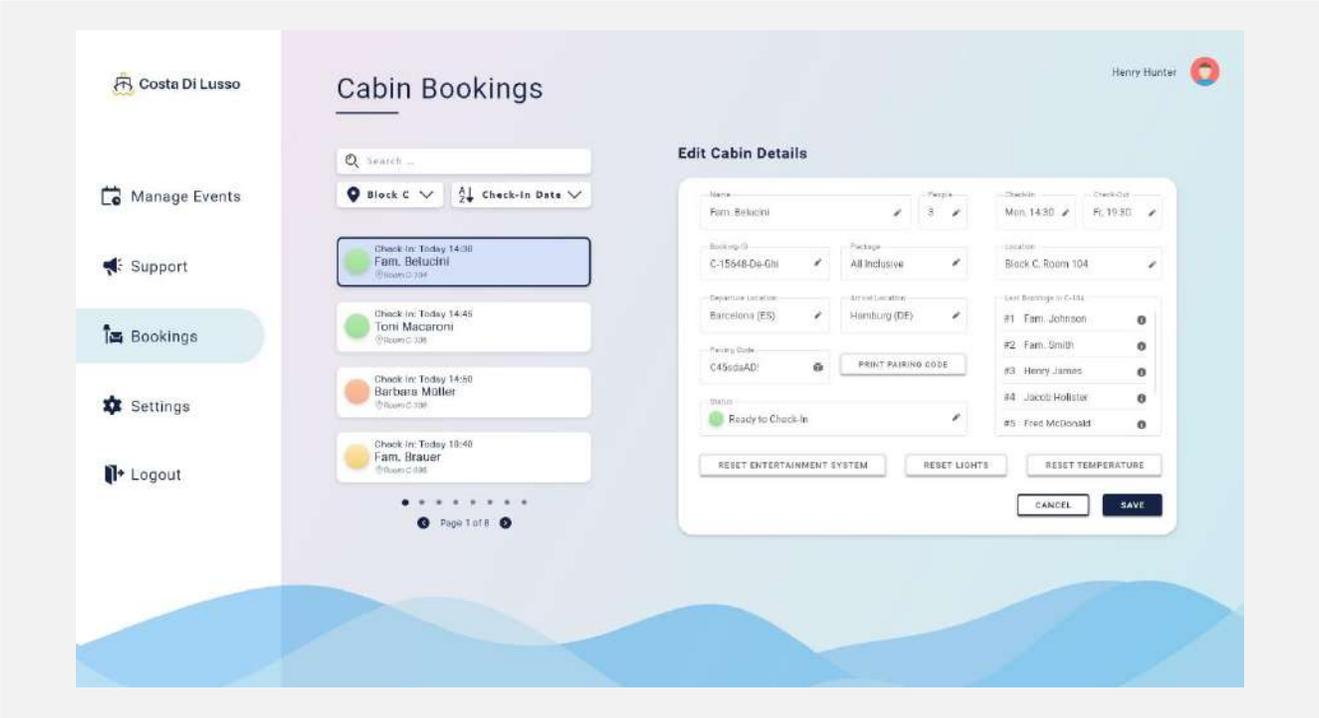
## Event Management



# Support Management



# Bookings Management



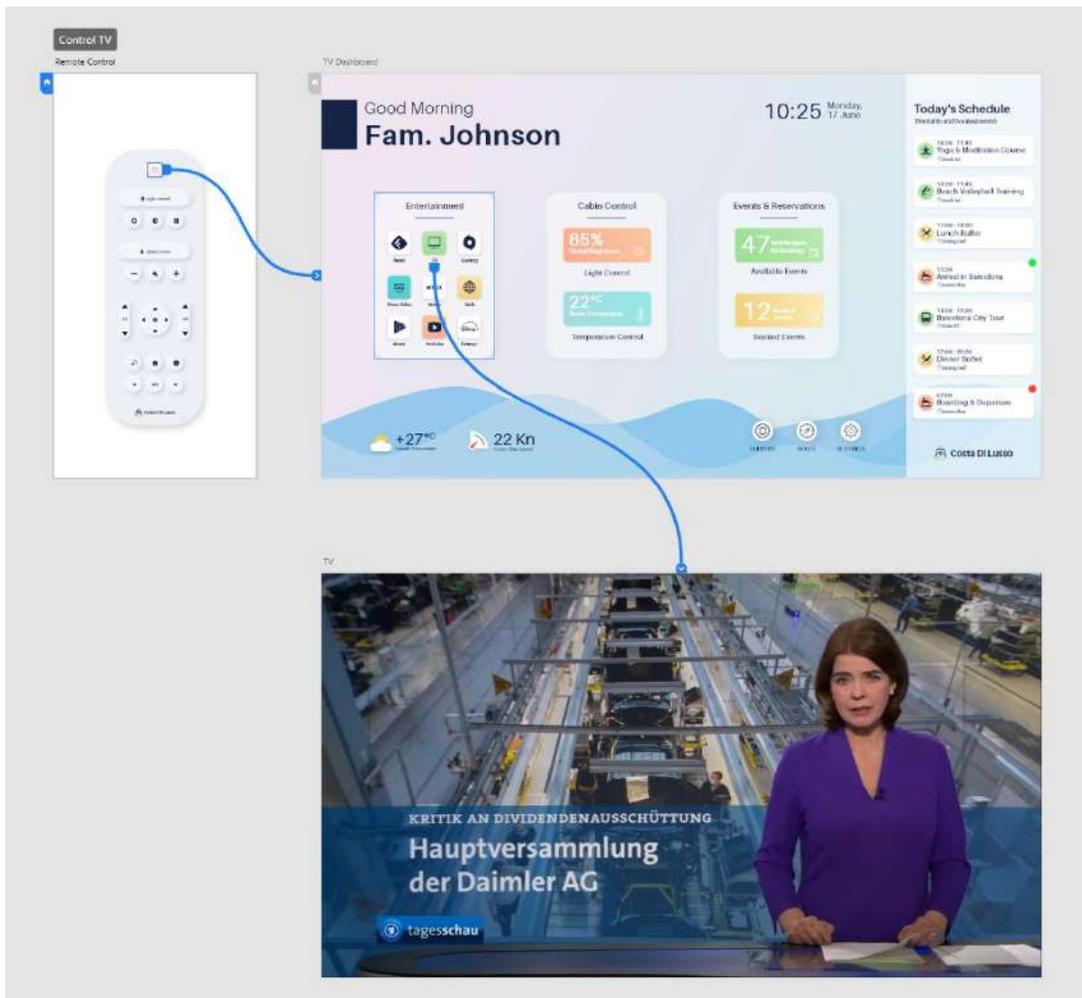
# Storyboards

The following storyboards connect the wireframes that have just been shown. The interactions that lead to the other screens are indicated with blue arrows.

In addition to the inserted graphics, there is also a link to an interactive demo that illustrates the storyboard with the help of the Adobe XD prototype.

## Ship Guest Tasks

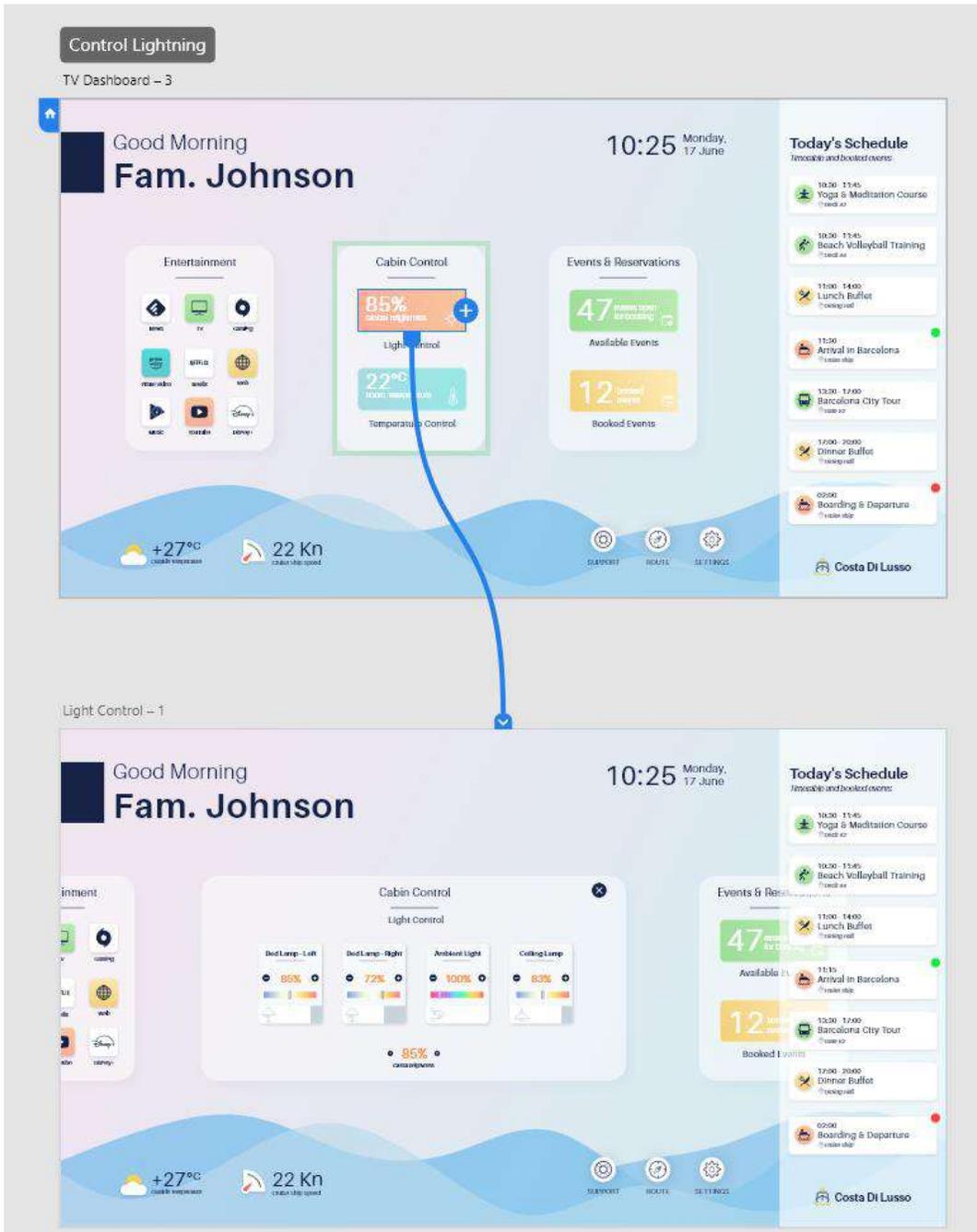
### a) Control TV



Adobe XD Demo:

<https://xd.adobe.com/view/765b8a29-4820-48cc-9093-f85047e059fd-2308/?fullscreen>

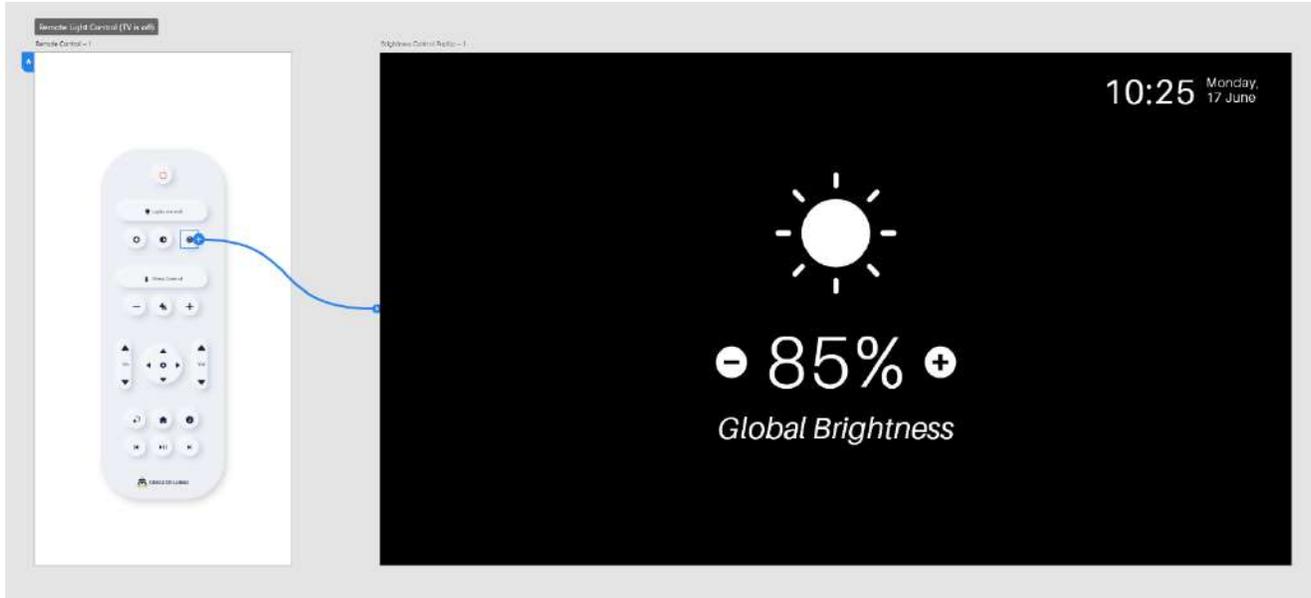
## b) Control cabin lighting



Adobe XD Demo:

<https://xd.adobe.com/view/0f680e5a-68ec-46d9-86ea-16b29d46fc5e-5a3b/?fullscreen>

In addition, a change in brightness is also only possible with the remote control, even when the TV is off. Inactivity display with brightness in percent is shown when the button is pressed.:



Adobe XD Demo:

<https://xd.adobe.com/view/264f838b-f1d7-45b9-8e9f-e4c519e9c45f-731c/?fullscreen>

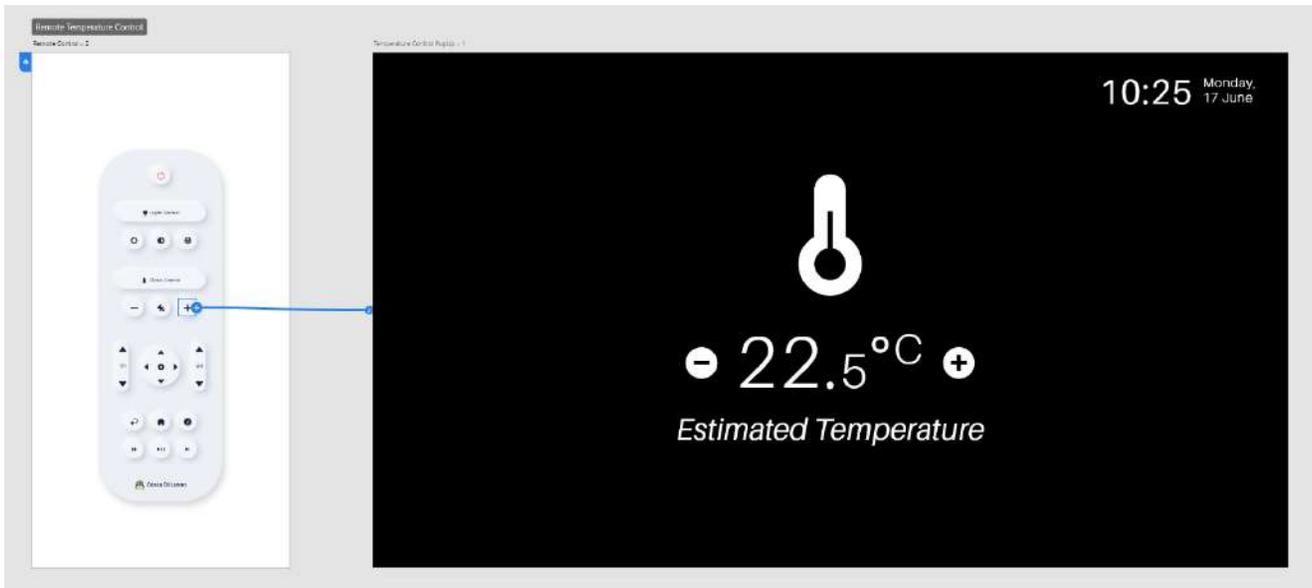
### c) Control cabin temperature



Adobe XD Demo:

<https://xd.adobe.com/view/7856ace6-8568-4775-b874-ab3a983059db-2d05/?fullscreen>

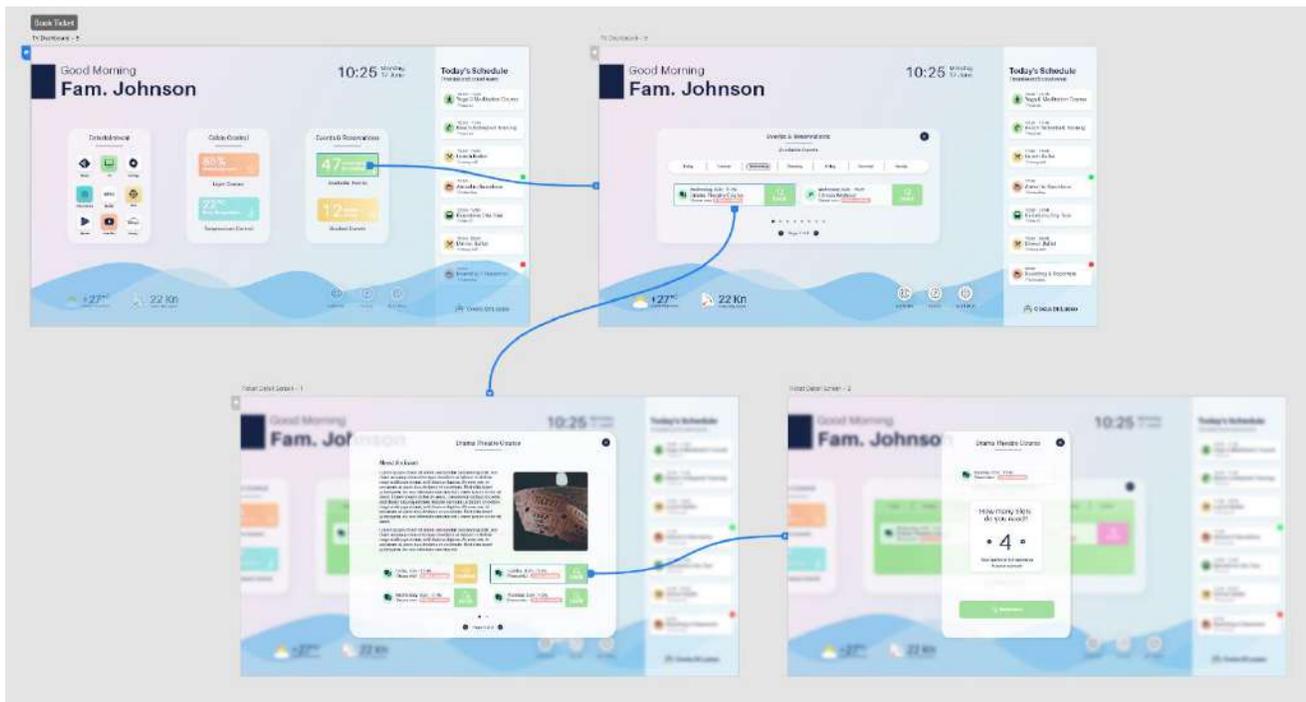
If you press the temperature change buttons on the remote control while the TV is switched off, the inactivity screen appears again.:



Adobe XD Demo:

<https://xd.adobe.com/view/e3eb585f-6b11-42d6-b91c-adfa3e678ab0-b6b8/?fullscreen>

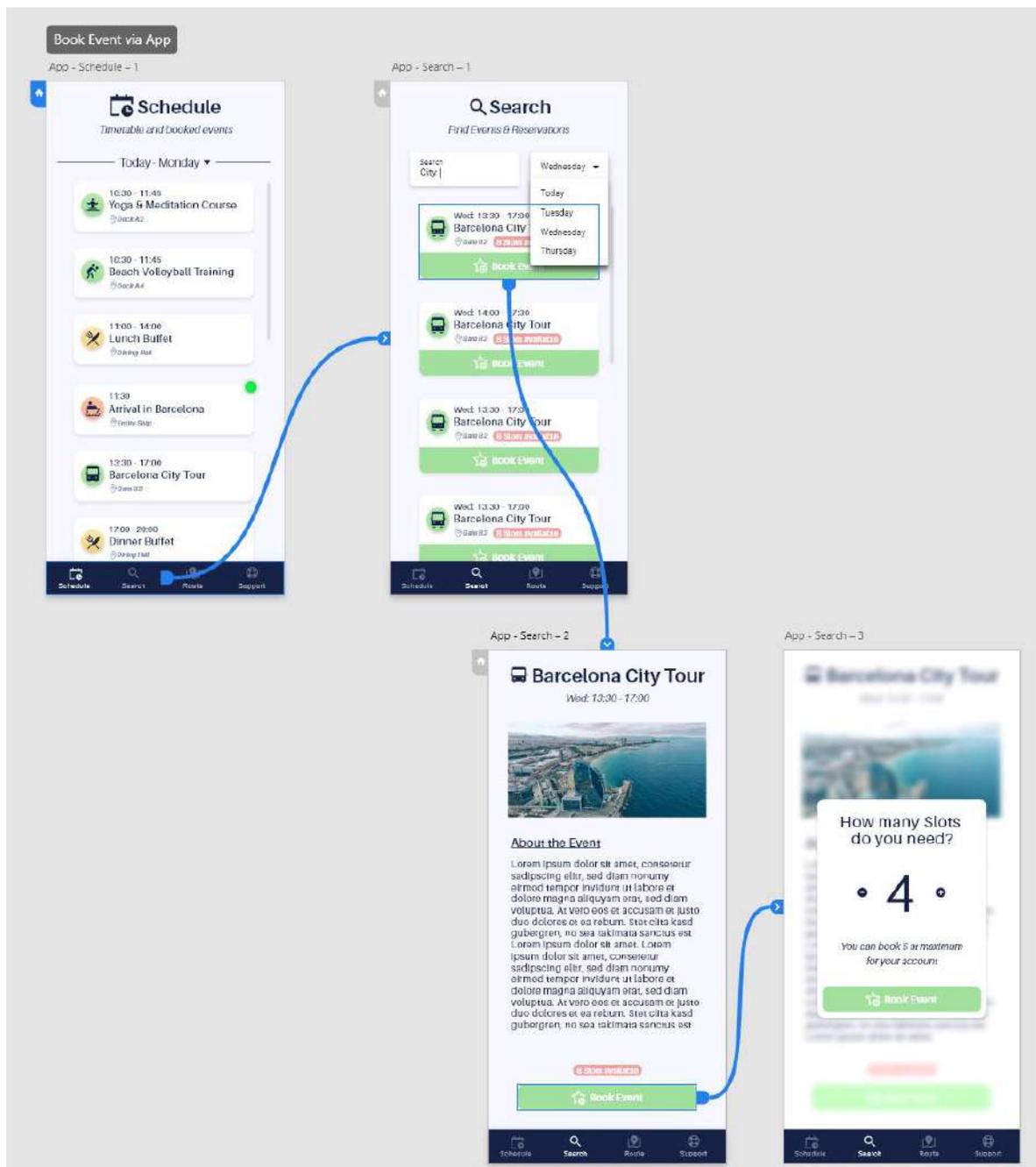
## d) Event reservation



Adobe XD Demo:

<https://xd.adobe.com/view/460e183a-5977-4292-88fc-9a5e2685638d-135d/?fullscreen>

To book events, the app can also be used:



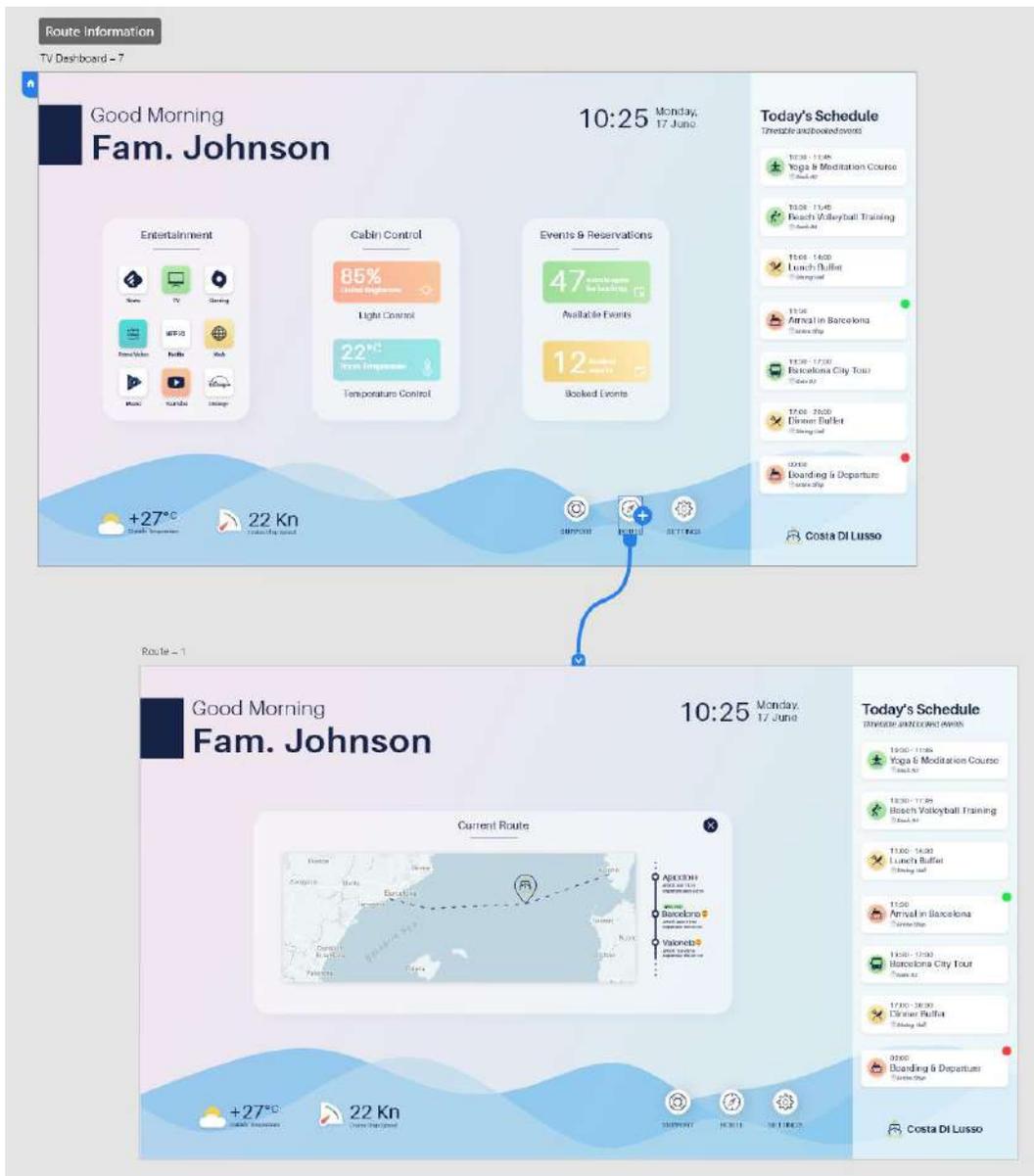
Adobe XD Demo:

<https://xd.adobe.com/view/141b6256-680c-4d5c-a901-9ade76fe9bab-4148/?fullscreen>

## e) Event & schedule notifications

Notifications do not require interaction and therefore do not have a storyboard. If you are watching TV, they appear in the upper right-hand corner, if you are not watching TV, guests receive an acoustic signal, and an inactivity screen is displayed on the TV on which the notification appears.

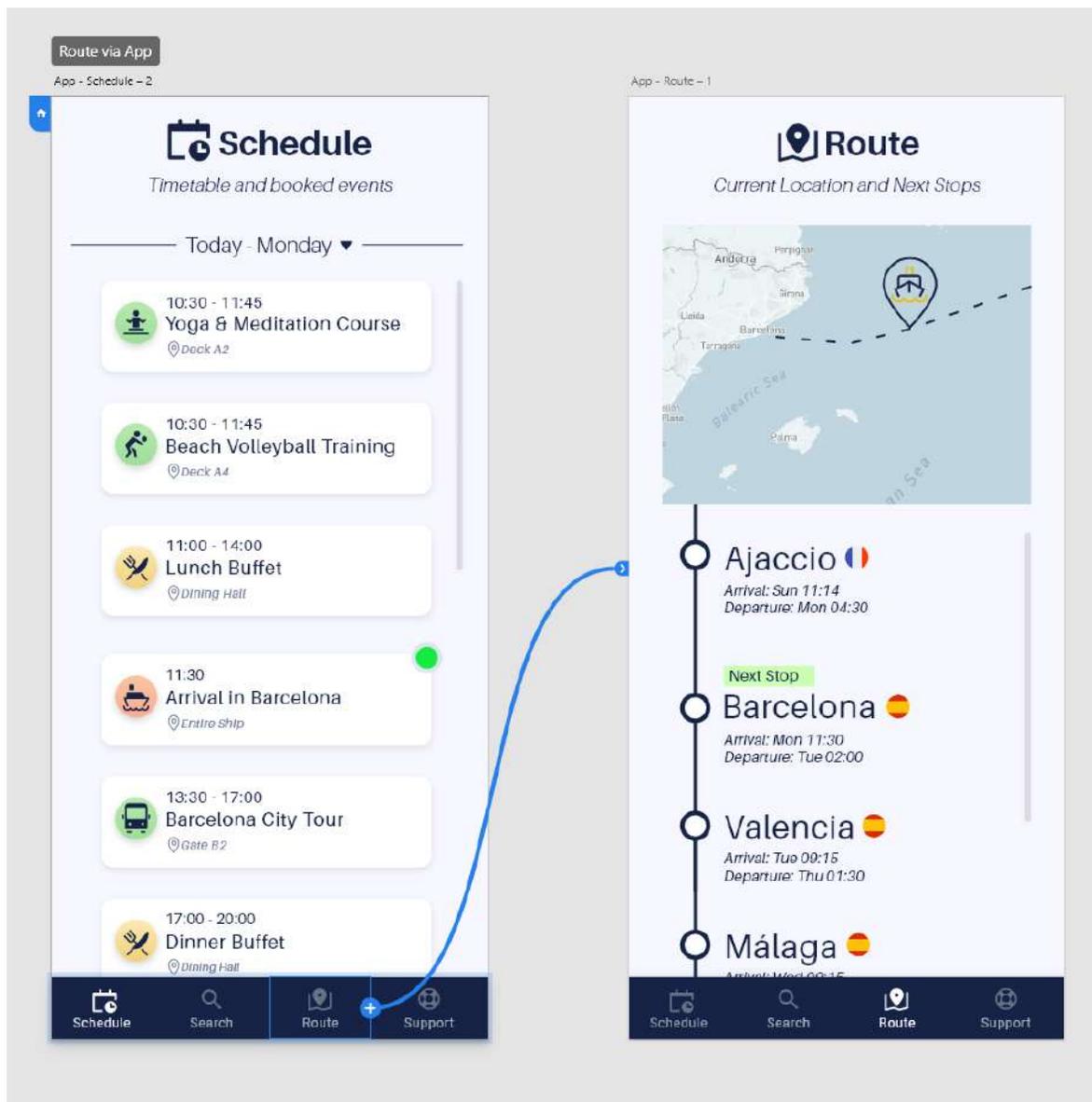
## f) Route Information



Adobe XD Demo:

<https://xd.adobe.com/view/1f04c918-89ad-4f2d-bd33-61a2af141ddc-4a57/?fullscreen>

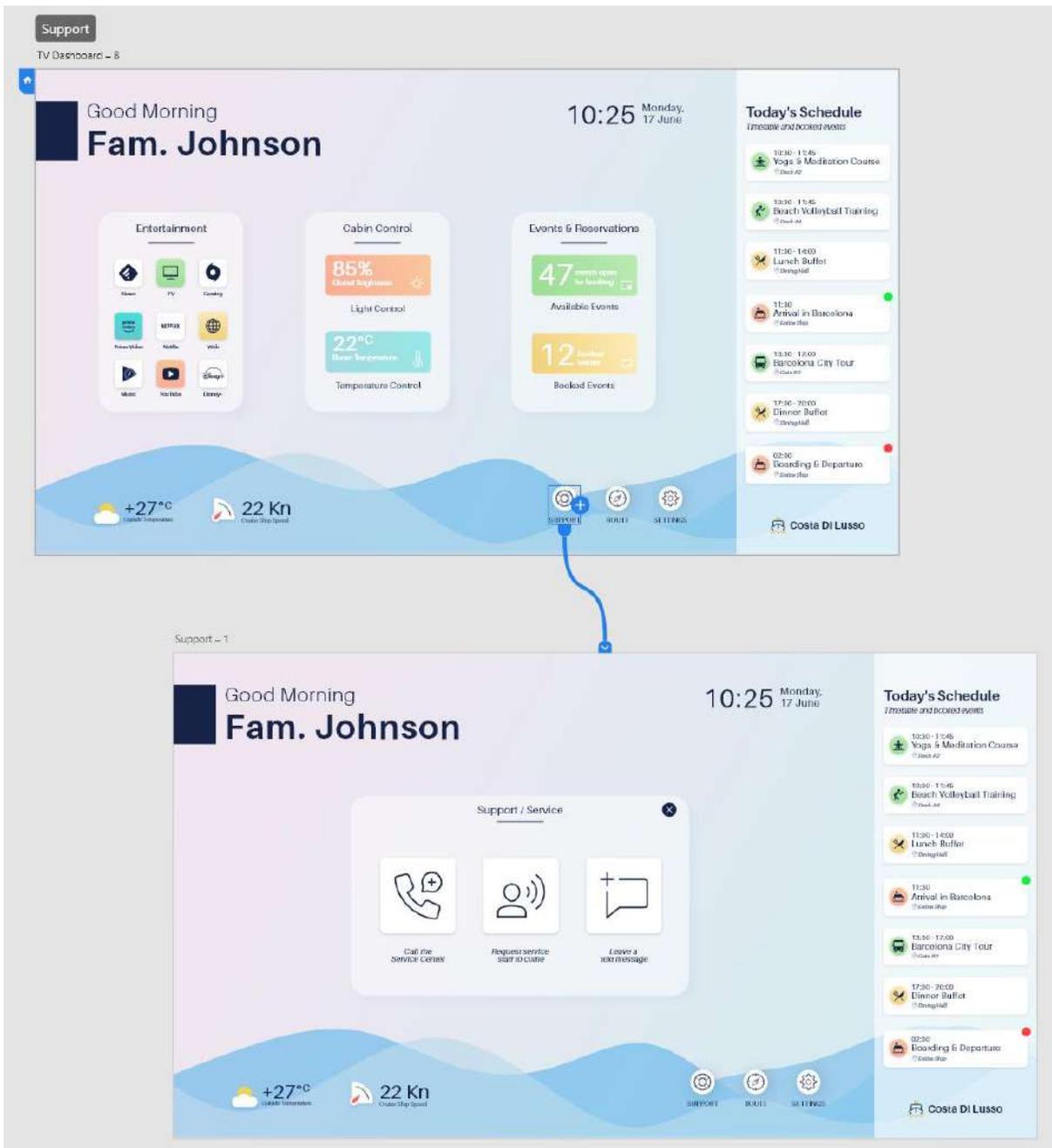
To obtain route information, the app can also be used:



Adobe XD Demo:

<https://xd.adobe.com/view/0f407794-7ab0-4269-88f5-c0d801e78356-5a13/>

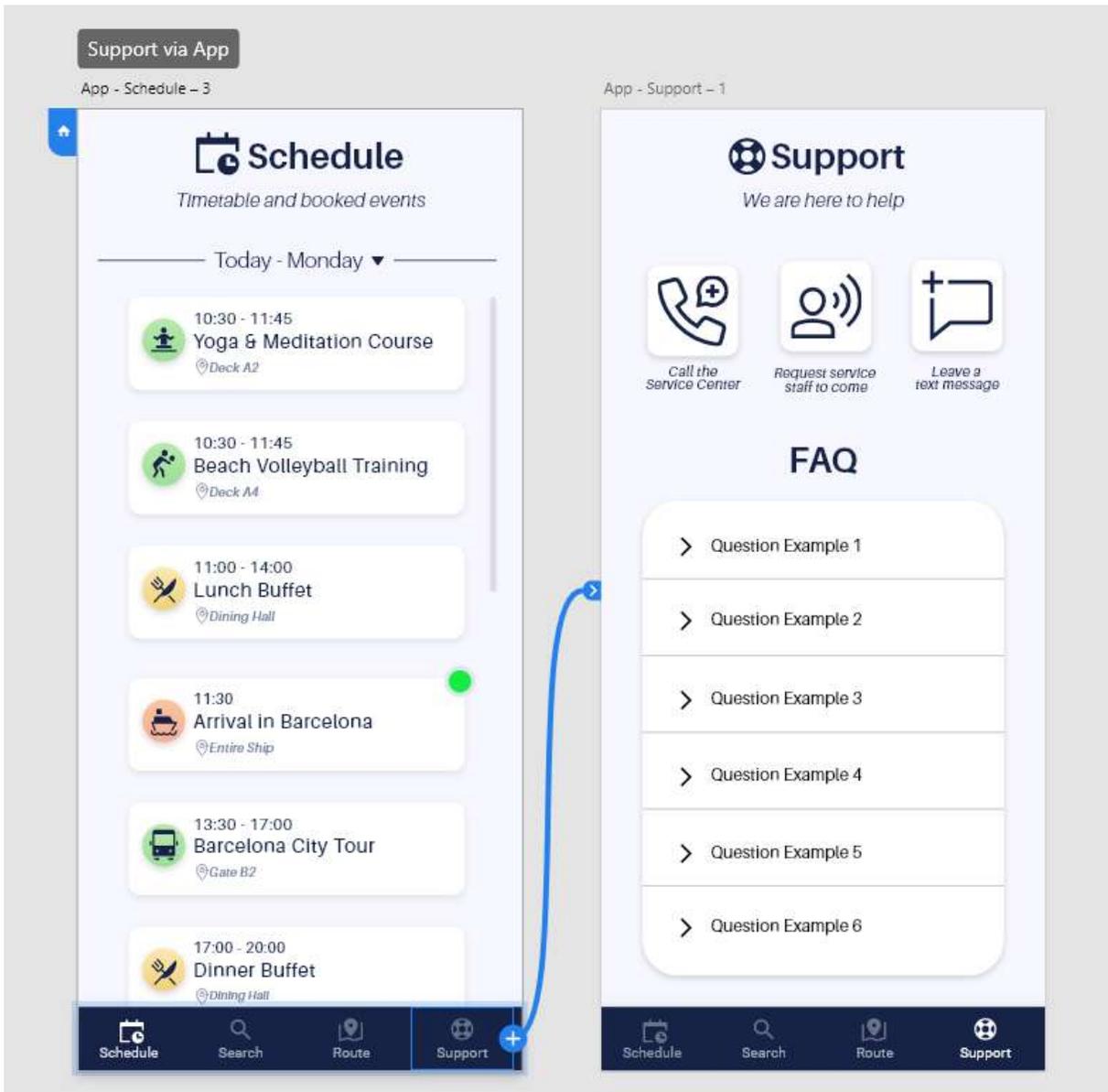
## g) Get Help



Adobe XD Demo:

<https://xd.adobe.com/view/4ff64861-041a-4cf9-a1fd-59a2cd582090-1aa5/?fullscreen>

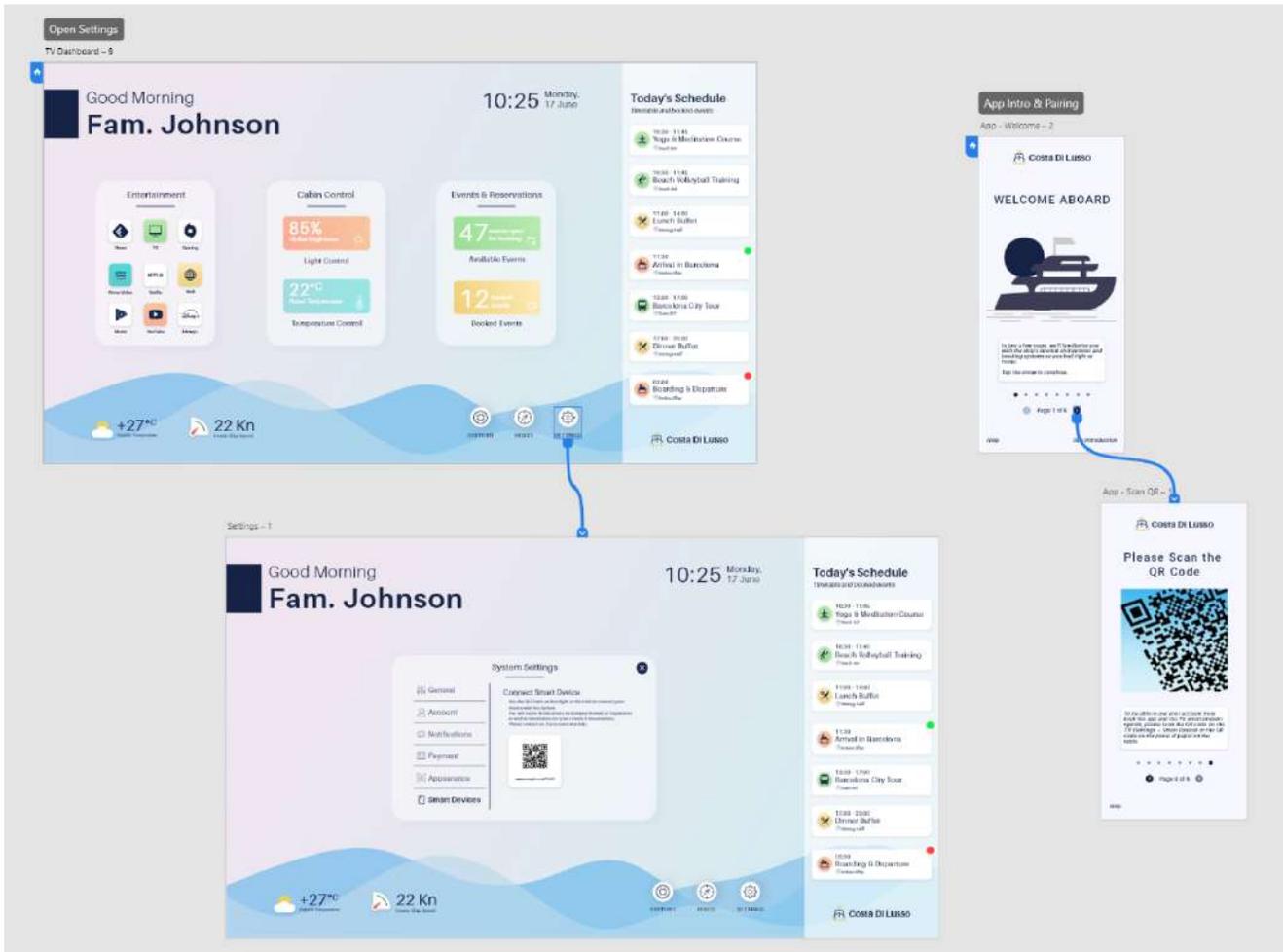
To get help, the app can also be used:



Adobe XD Demo:

<https://xd.adobe.com/view/a8bc5a71-c0d3-448a-925d-9e1db827961c-fdef/?fullscreen>

## h) Connect smartphone app (authentication)



Adobe XD Demo:

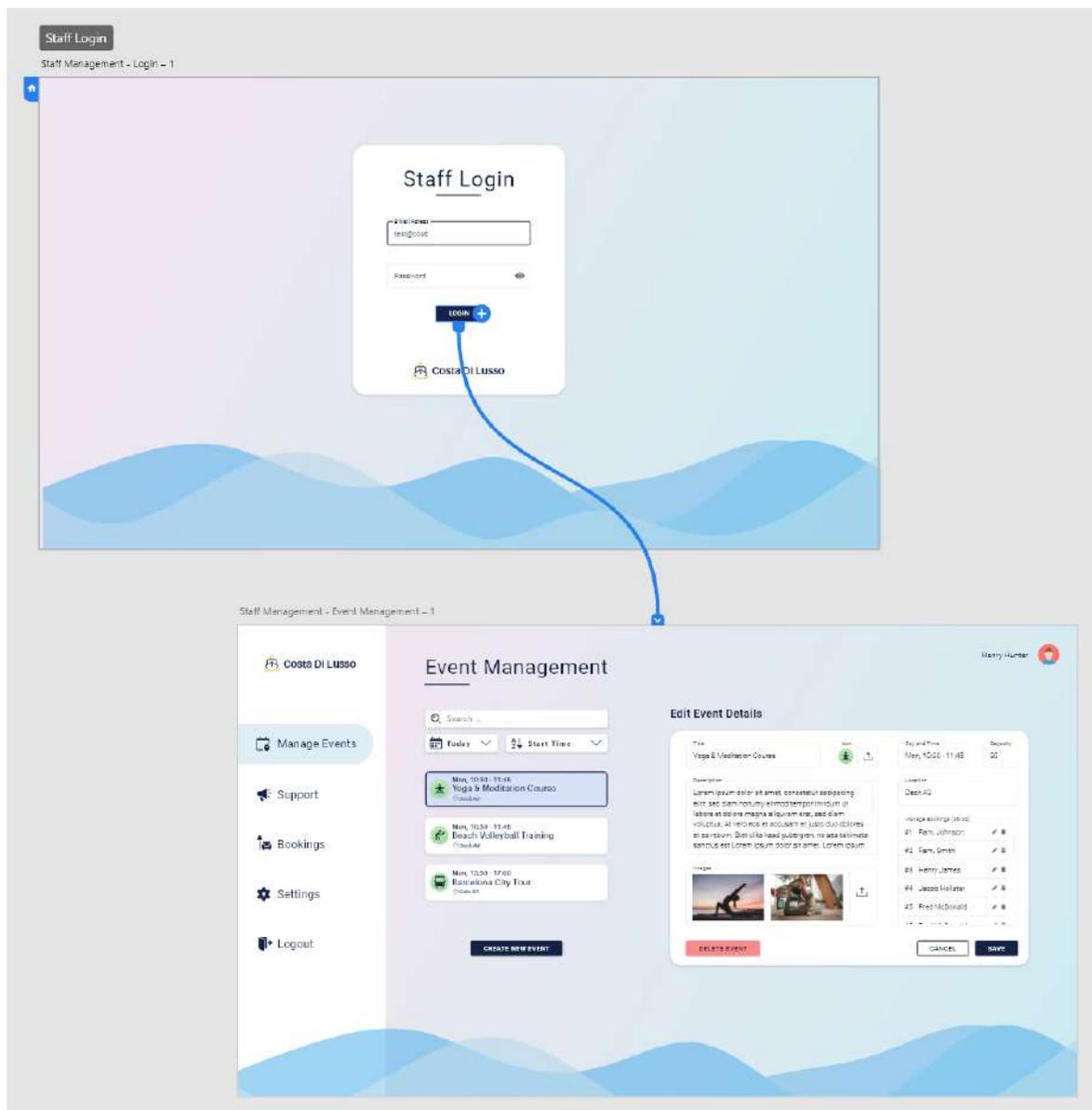
Settings: <https://xd.adobe.com/view/9e1a4bda-0e27-43c2-807b-6f57f6c19844-cb49/?fullscreen>

App: <https://xd.adobe.com/view/d560cd72-1aaa-40b3-bec7-3a0b76d4c402-8033/?fullscreen>

## Staff Member Tasks

Since the service backend is planned as a OnePage layout, there are hardly any interactions that transition to other screens. Therefore, the storyboards are relatively concise. However, there are interactions on the respective OnePage wireframes, which have already been described in the task flows.

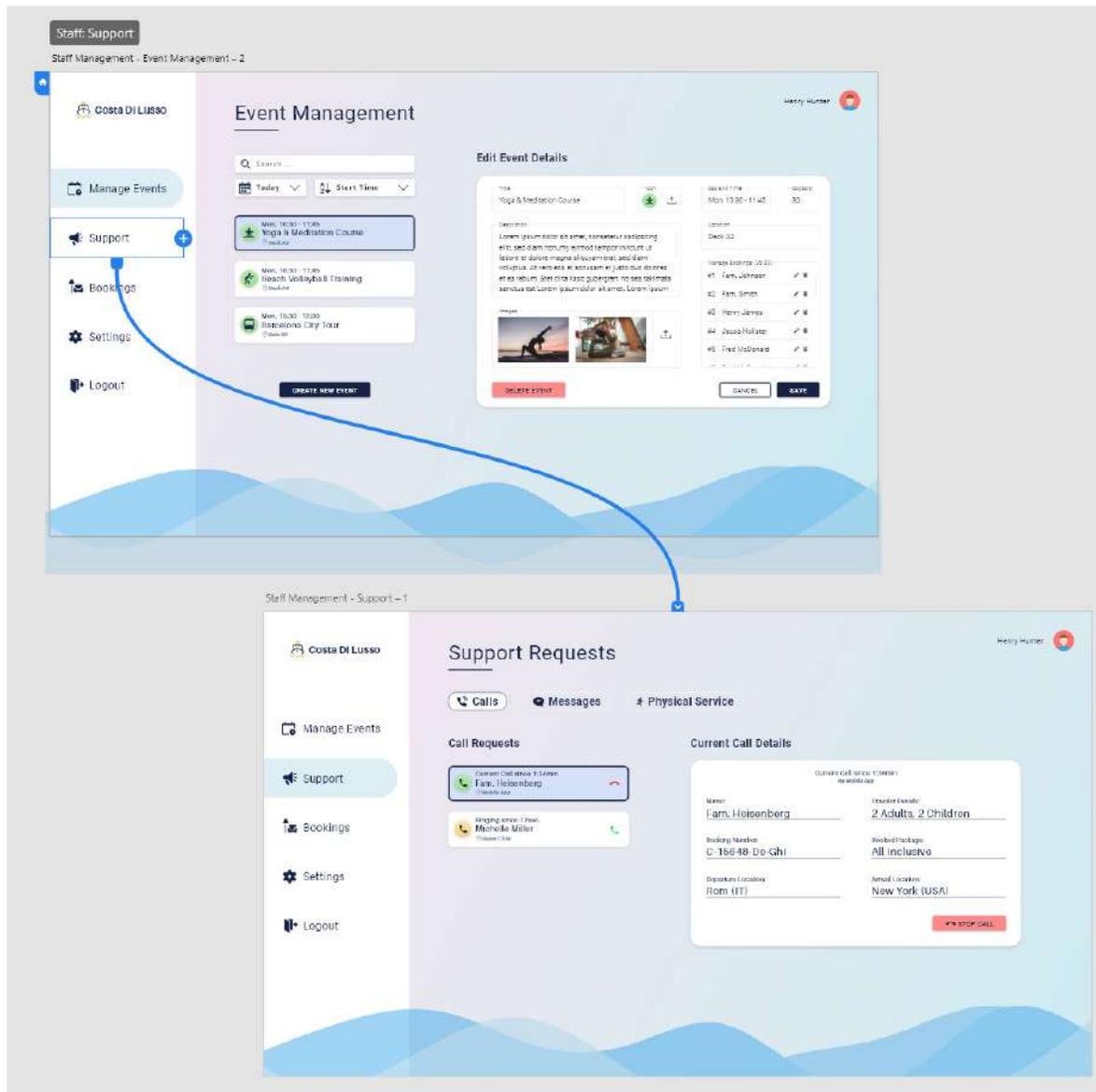
### a) Login to access system *and* b) Manage events



Adobe XD Demo:

<https://xd.adobe.com/view/393c1587-f142-4cc5-8a93-11cccfceab05-6c6f/?fullscreen>

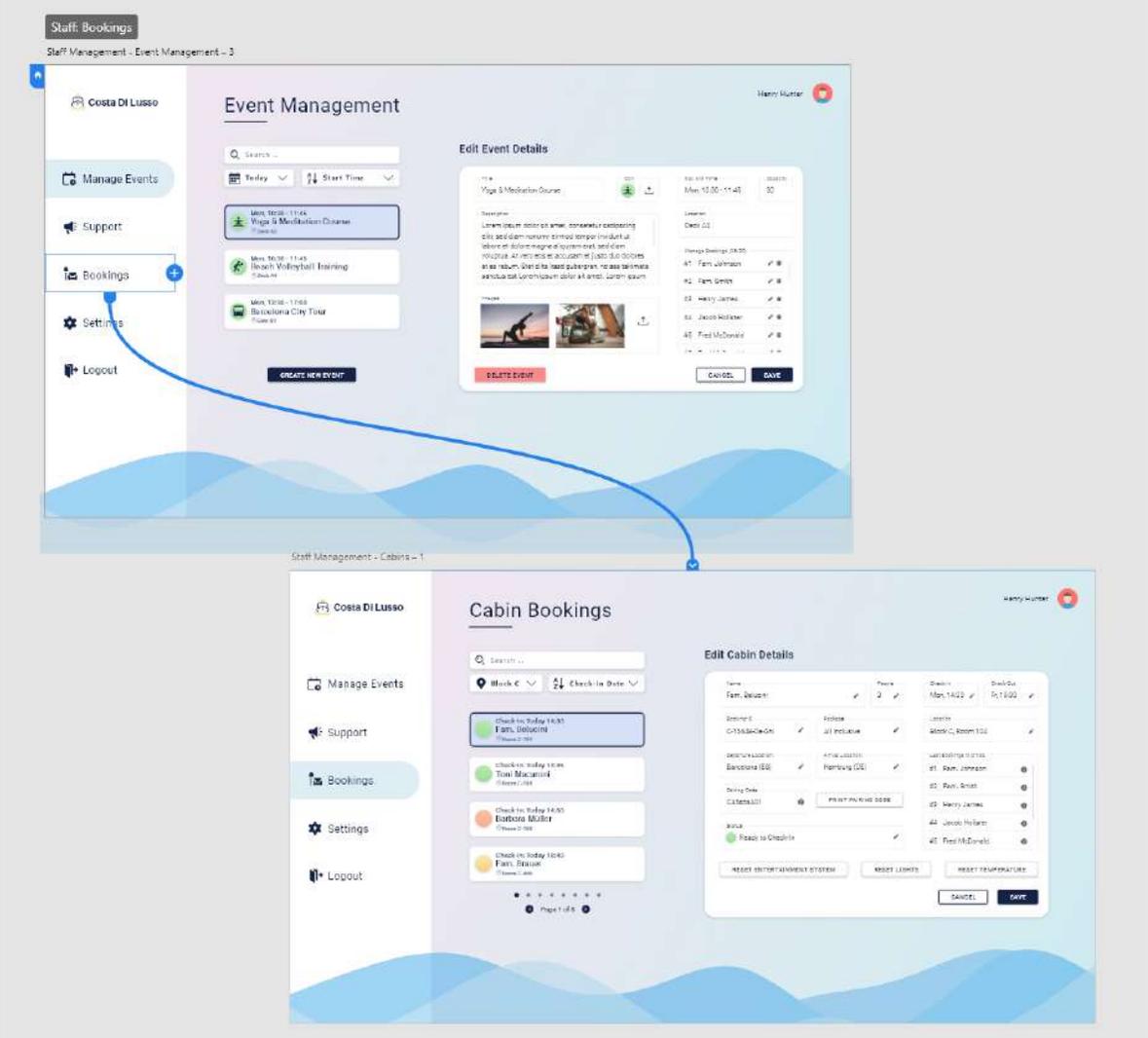
## c) Manage support requests



Adobe XD Demo:

<https://xd.adobe.com/view/0ecbfd7-efeb-4c12-b17d-303490a1bfc2-5b98/?fullscreen>

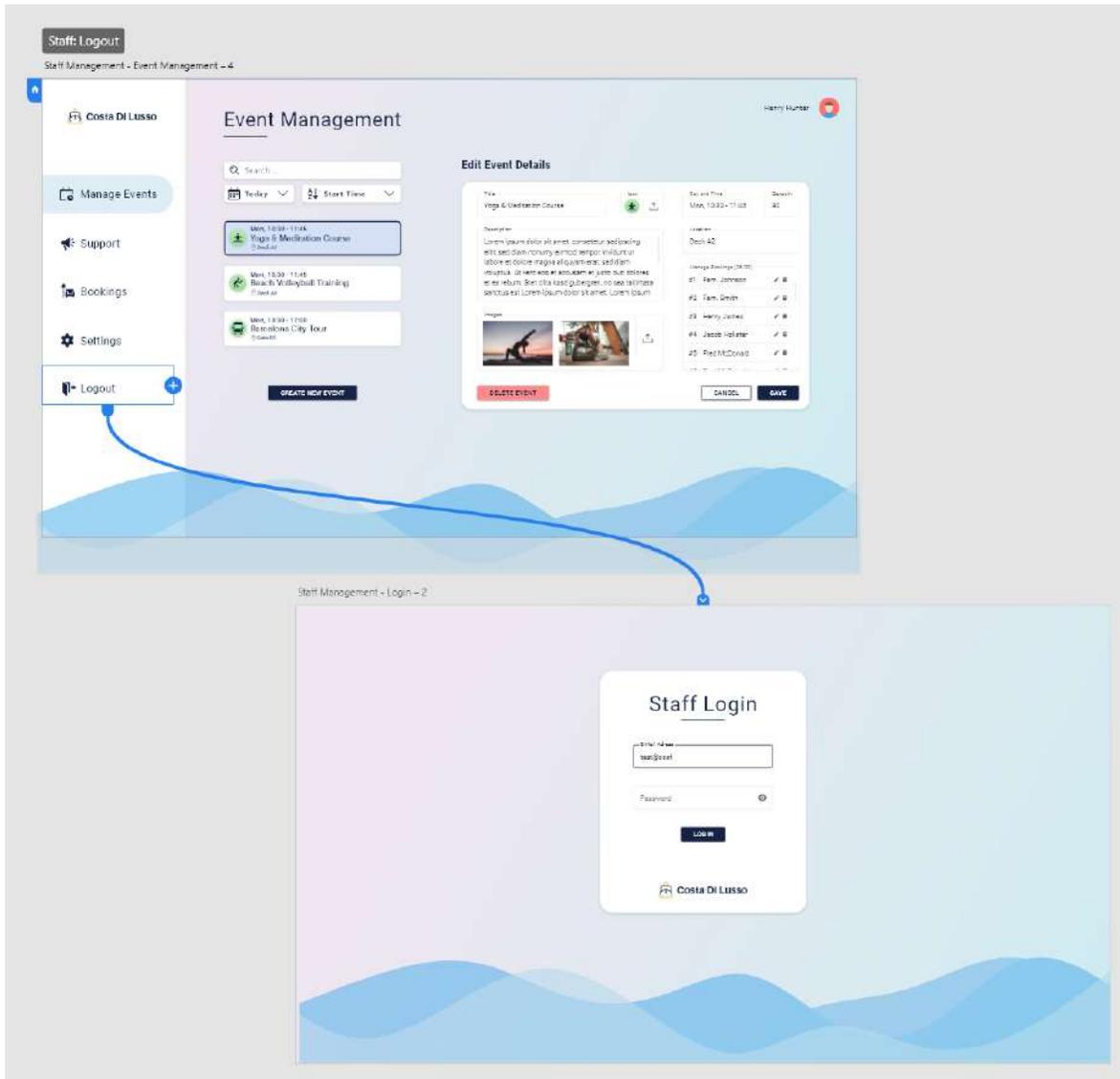
### d) Manage cabin check-ins & status



Adobe XD Demo:

<https://xd.adobe.com/view/ee4e6dcf-6f48-4067-9be8-d781e95c727c-bb1d/?fullscreen>

## e) Logout



Adobe XD Demo:

<https://xd.adobe.com/view/4f035483-2813-4182-8800-043c40fdced3-1a50/?fullscreen>

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# Sequence Controls

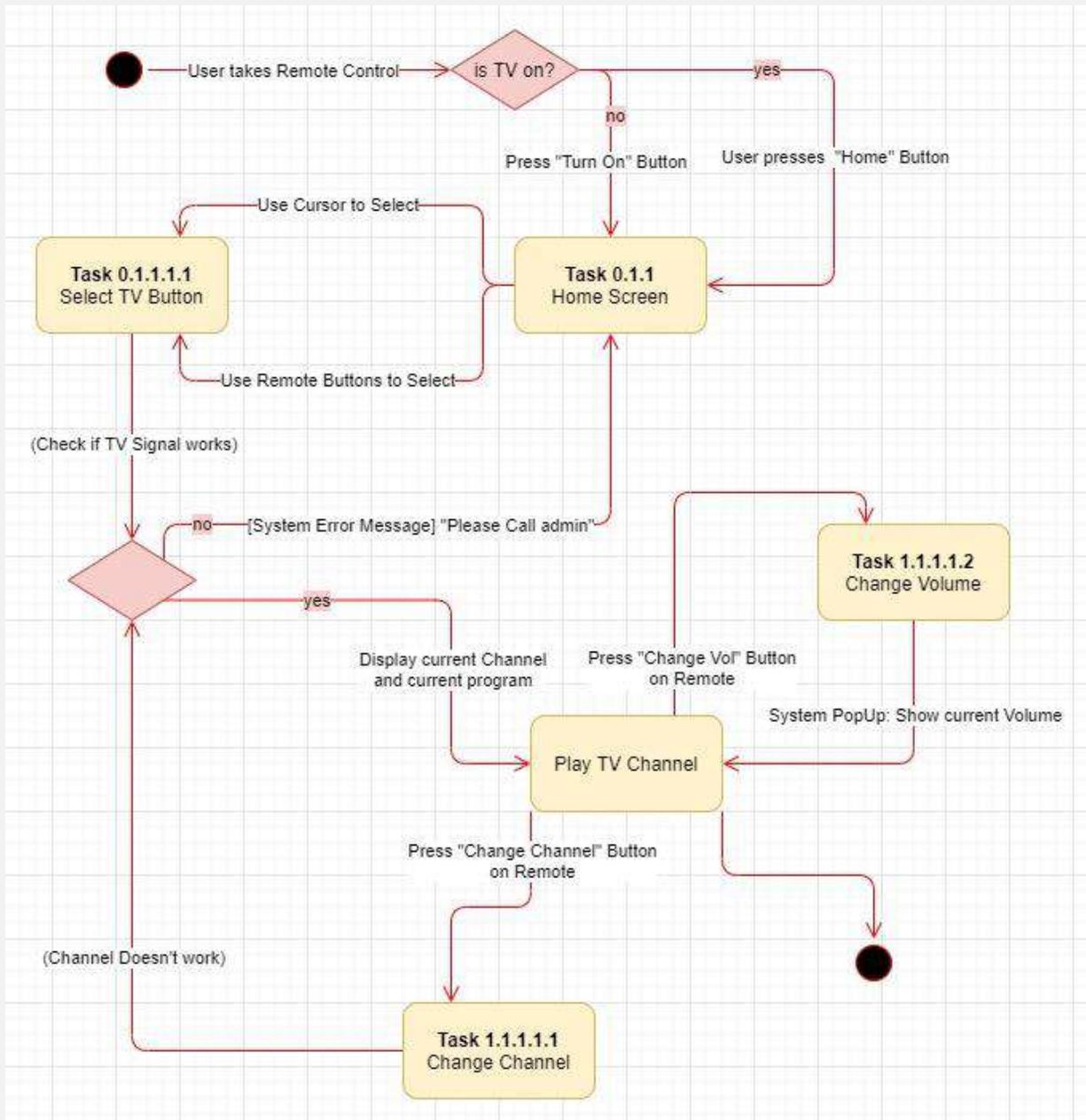
The four most important functions of the system are "TV control", "Lighting control", "Event bookings" and "Schedule change notifications".

In the following, each of these scenarios will be demonstrated using a state chart diagram. Here, the interactions of the users are related to the reactions of the system and possible sources of errors and messages of the system are shown.

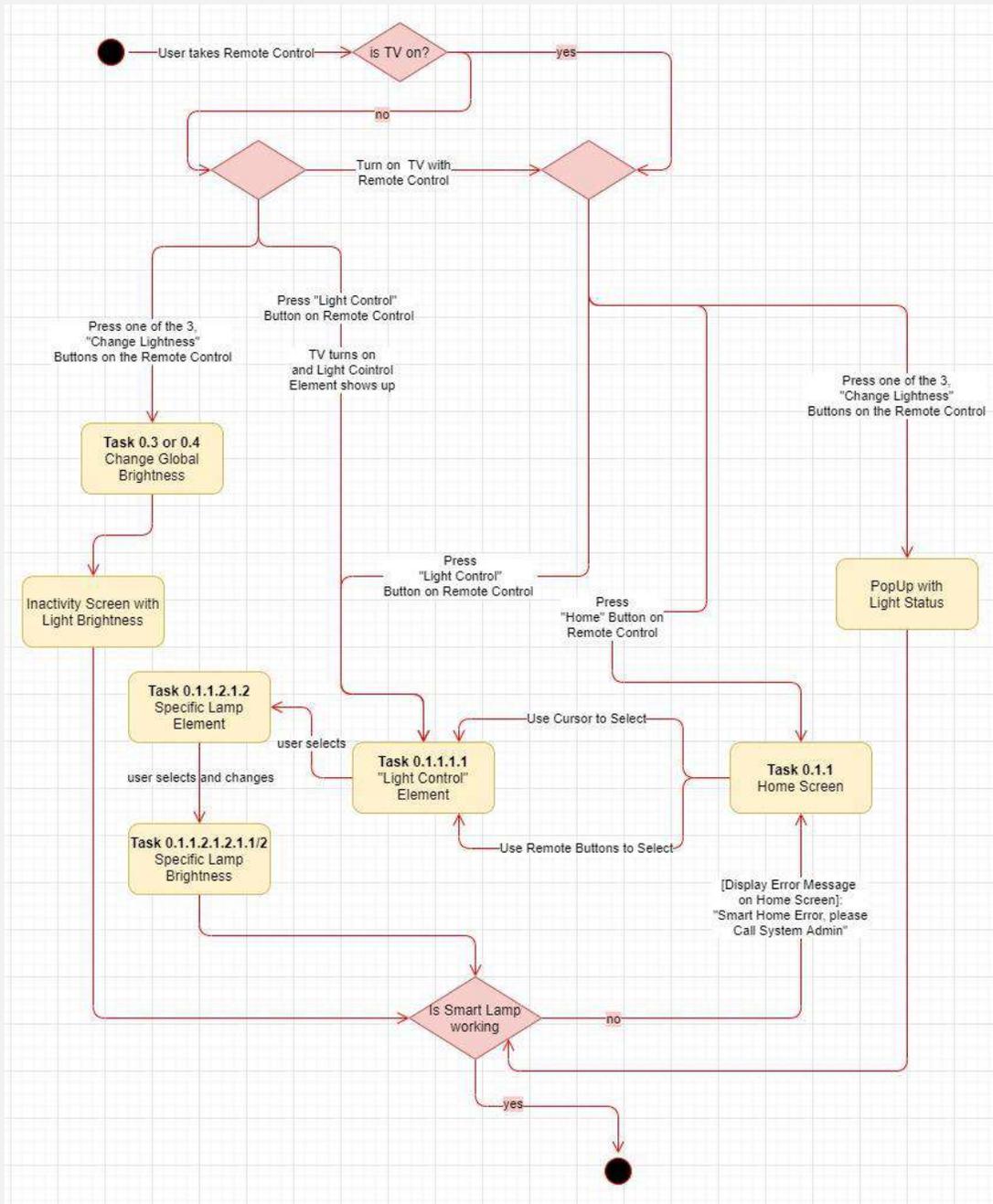
As an example, I have inserted at one point that there is of course always the possibility to select the interaction element directly with the cursor, but it is also possible to navigate to the event using the cursor keys.

The state chart diagrams shown here are only for the TV system and not for the app or the staff backend system.

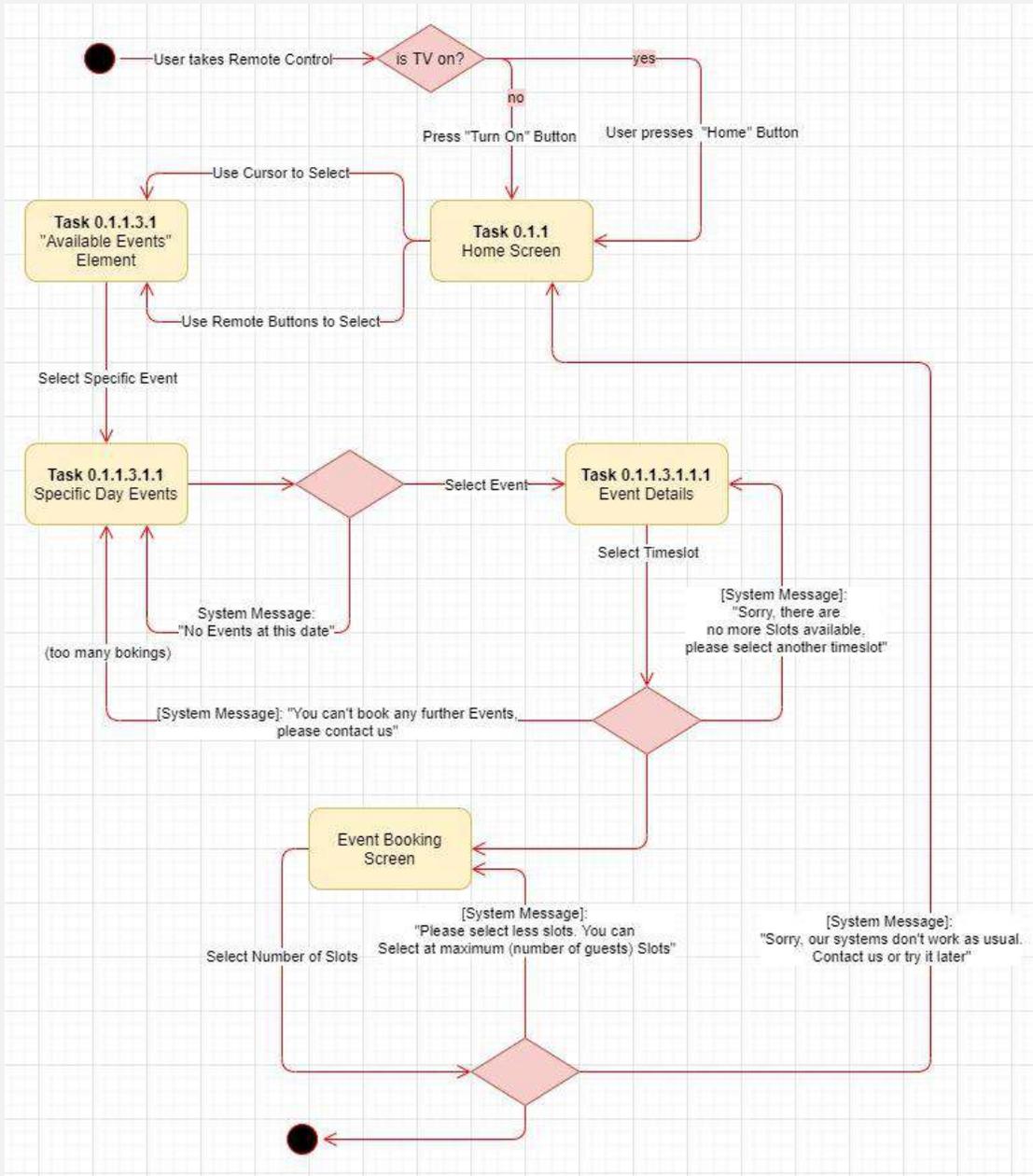
# TV Control



# Light Control



# Event Bookings



## Receiving notifications

