

Dynamic room use@HAN

# Problem

Due to a drastic increase in student numbers and an ongoing shift to project work in small groups, the HAN experiences a capacity problem regarding rooms. What makes matters worse is that rooms are often scheduled for an entire study period, although the rooms are not actually required in all of the reserved slots or not for the entire reserved time.

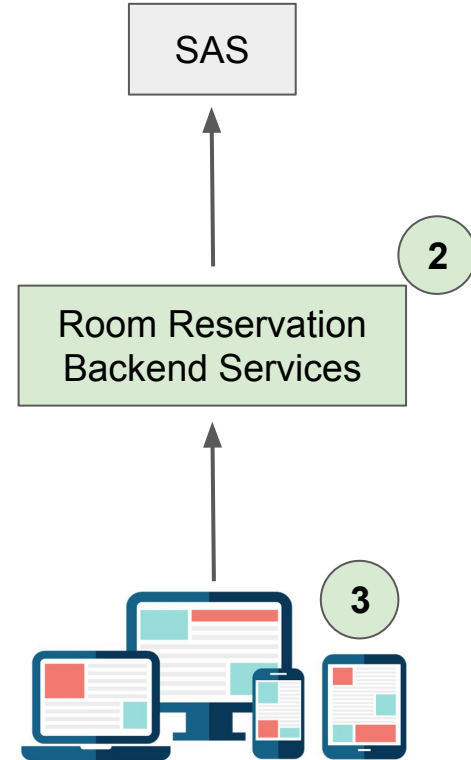
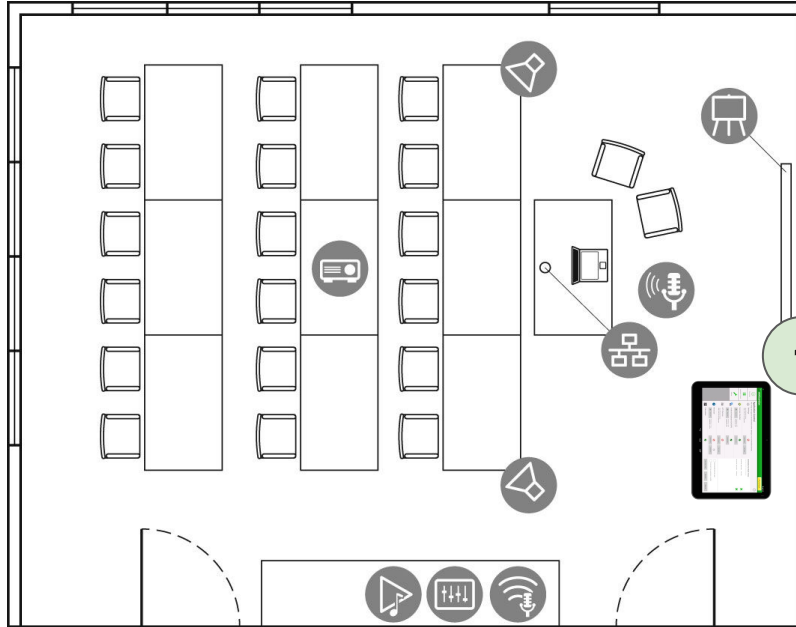
To partially remedy these problems, the HAN envisions a software system that allows for dynamic room reservations by students and lecturers. An important characteristic of the system is that it checks whether persons are actually physically present in the room during the reserved slots.

# Technological aspects of the solution

- Android tablets mounted to walls in all rooms running a reservation APP
- Motion detection on tablet using built-in camera
- Responsive web application for placing room reservations
- QR-code generation and scanning

# Architectural Vision

Seminar rooms at the HAN

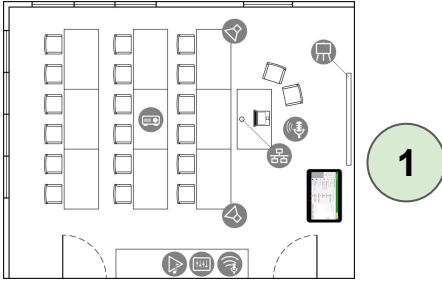


**1** Android Tablet App

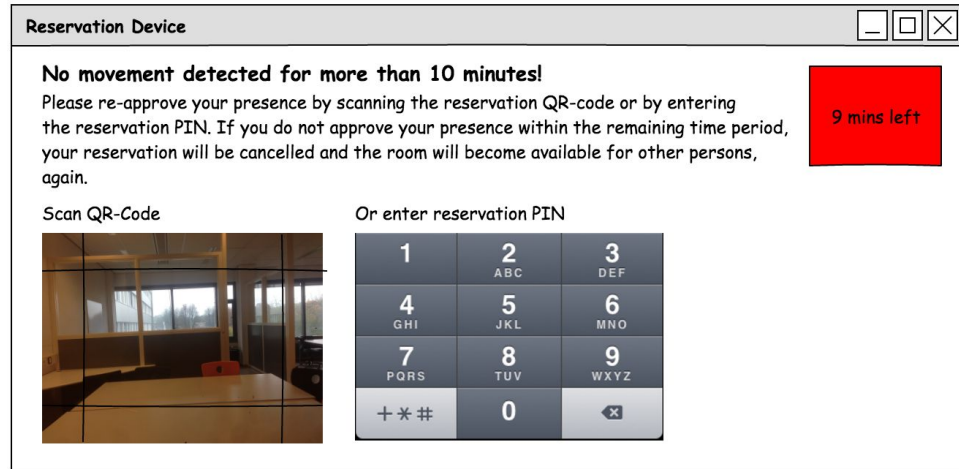
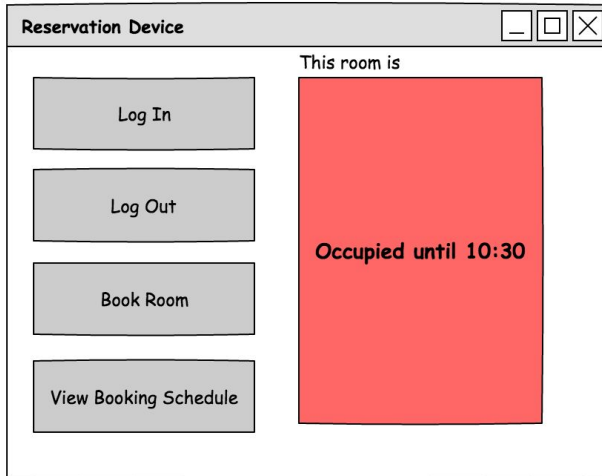
**2** Backend services (e.g. webservices, database,...)

**3** Responsive web application for reservation and room status

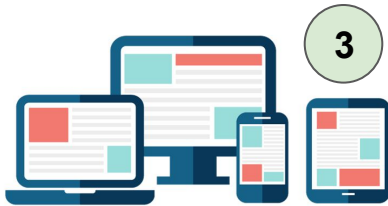
## Seminar rooms at the HAN



- Android tablet attached to a wall in the room
- Runs an application for
  - Approval of room reservations (persons who have reserved a room log in to the APP using a QR-code or a PIN code)
  - Reserving the room immediately
  - Detecting motion in the room using the integrated camera
  - Showing the reservation status of the room



## Web application



- Responsive web application that runs on desktops, phones and tablets
  - Search for available rooms
  - Place reservations for rooms

Room Reservation ICA

### Room Reservation

Date:    Beamer/ Screen required

Start:    SmartBoard required

End:    Whiteboard required

Num people:

Preferred Locations:

- R26 C-Wing
- R26 D-Wing
- R26 E-Wing
- R26 B-Wing

Room Reservation ICA

### Room Reservation Results

Check one of the available slots below

	08:45	09:30	10:30	11:15	12:00	12:45	13:30	14:15	15:15	16:00
D 1.12				<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D 1.10			<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>				
C 0.04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							

Chosen room:

RoomNo:   Beamer/ Screen

Capacity:   SmartBoard

Whiteboard

Add all persons who will use the room in the reserved time-slot

- hans.hansen@student.han.nl
- henk.jansen@student.han.nl
- jan.jager@student.han.nl
- tineke.vdStreek@student.han.nl
- loes.hansen@student.han.nl

Room Reservation ICA

### Confirmation

**Reservation PIN: 564389**



When entering the room, one of the registered persons needs to scan the QR-code at the reservation device in the class room. Alternatively, your presence can be approved using the PIN code above.

Your reservation will automatically be cancelled, if your presence was not approved within the first 10 minutes of the reservation period. The room will then become available for other reservations, again.

Backend

2

Room Reservation  
Backend Services

- Backend Services required for the system
  - Interfaces with SAS for getting a list of available rooms and time-slots
  - Provides data persistence services
  - Optionally provides messaging infrastructure for syncing wall devices and web application
  - ...