

# ADRIA intelligent room system

## New functions overview 2017

### Contents:

#### Residential part (rooms):

1. Access control and presence monitoring
2. Temperature control
3. Energy management
4. Hospitality
5. Security
6. Building facility
7. Lights control
8. ADRIA DigitalKey and ADRIA MobileControl

#### Public areas (halls, parking, passages, beaches):

1. Access control
2. Temperature control
3. Lights control
4. Common hotel parking
5. Towel Service – issuance monitoring
6. SOS – areas for disabled, wellness

#### PC:

1. Central IROOMS app
2. WEB Clients for various workplace distribution: reception, backoffice, hospitality, service,...
3. Mobile application with AdriaCloud database

#### Integration:

1. PMS + POS identification
2. HVAC
3. BMS
4. CRM iLumio
5. Parking systems
6. Intercoms
7. System for recognizing car registration plates
8. Automatic check-in kiosk
9. Security systems
10. Energy monitoring systems

## Residential part (hotel rooms)

### Access control



- Centralized card control (creating, deleting)
- Realtime entry/exit monitoring
- Simple access control for large number of public passages and large number of people
- Different card types have different functions
- One card for all
- Multiple rooms can be joined/unjoined automatically
- Restricted personnel access in case guest is in room or 'DO NOT DISTURB' is activated (configurable)
- 240 master cards

#### NEW functions 2017

- ADRIA MobileKey – room entry with mobile app
- Can be used as a stand-alone app or integrated in a larger system (iLumio, etc..)



### Presence



- Only authorized card can activate the room
- Fast overview of room occupancy on reception PC
- Energy management and security
- Can be used in conjunction with PIR sensors for increased accuracy (recommended)
- Automatically provides statistical information on room maid efficiency

All rooms on a single screen – room occupancy and rented rooms at a glance:



## HVAC control



- Guest can control fan speed and room temperature within allowed range (configurable)
- Set temperature is displayed on a room thermostat
- Three modes of automatic room temperature control:
  - ECONOMIC – room is not rented
  - PRE-COMFORT – room is rented, but guest is not in room
  - COMFORT – guest is in room and has full control

Parameter setup is centralized and can be sent to all rooms, a group of rooms or a single room.

All data is recorded and accessible for further analysis and optimization.



Other than AC, further control of bathroom floor heating, radiators, dampers, towel heaters, etc.. is possible. The system is flexible and modular, each parameter can be adjusted to achieve optimal control and maximum power saving.

ADRIA system can control various HVAC systems at the same time, for example fan-coil in a hotel, VRV in annex, etc.. For operator, it is one system with same parameters, and ADRIA adapts the control according to HVAC system type.

## Energy management

- Based on occupancy and number of rented rooms, electrical devices in rooms are shut down and room temperature mode is switched.
- System monitors the room temperature in real-time and alarms the operator if significant deviations occur, before temperature goes to extreme values.
- Hotel rooms can be divided into groups (north-south, upper floors-lower floors) and then temperature in each group can be fine-tuned for optimal temperature control
- External sensors can be connected (electrical power meter for peak power monitoring) and then fan-coil speed can be reduced or even shut down if needed
- Electrical heating devices (radiators, floor heating,...) can also be deactivated based on external energy management sensors
- When turning on electrical floor heating in rooms, an algorithm can be used to sequentially turn them on with delay to reduce peak power load.
- Special algorithms for sunshades/jalousies control is also available (summer-winter)
- Light control in public areas (hallways, staircases,...) based on PIR detector signals and time of day
- Balcony lights in rooms can't be turned on during daylight - configurable
- Towel dryers are controlled with a special algorithm (summer-winter, day-night)
- With BMS system integration, energetic resources can be controlled based on real-time occupancy on a single floor or any part of the hotel
- BMS system integration also enables control of fresh air handling units according to special algorithm (fresh air is conditioned to optimal temperature)
- **NEW in IROOMS v10:** all events that affect energy efficiency (room power failure, too high temperature, etc..) are automatically forwarded to maintenance cell phones as a notification

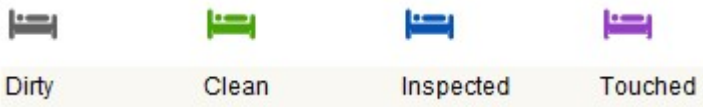
### FUTURE PLANS OF DEVELOPMENT

- Measuring of outdoor parameters (temperature, humidity) which will enable fine tuning of existing algorithms and analysis of interdependence between indoor and outdoor measurements.
- Map of HVAC system efficiency in rooms in real time, which would enable faster detection of problematic rooms



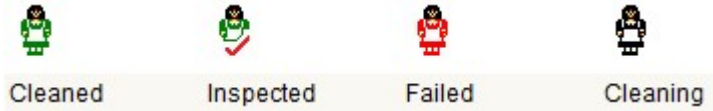
# Hospitality

Simple room status control, insert card into card holder and press a pushbutton:



In IROOMS software all room statuses are updated in real time. Each status change is also sent to PMS system.

Except for current status, cleaning status is also available:



Cleaning status shows if the room is cleaned, inspected, failed inspection or is being cleaned. All statuses are available on housekeeping computer via WEB interface or on a cellphone mobile application in real time.

**(NEW in IROOMS v10):**



Currently, mobile app serves only for data analysis, but in future it will also be possible to change room status or set specific parameters.

Call Room Maid, Do Not Disturb and mini-bar statuses are also connected to hospitality and they can be viewed on mobile app in real time. By a simple data filtering, a list of rooms where mini-bar was opened is available. When a room is checked, it is automatically removed from the list, everything is done in real time and there is no need for printed lists.



Log Web Server

Filter

Date: 2016/12/21 - 2016/12/22 Time: 00:00 - 23:59 Only inside entered time

Maid:

Minimal time: 5

Search

Name	Room Count	Duration	Average	Rooms (duration)
Dina Somali	3	00:47:00	00:15:42	109 (14), 110 (19), 111 (14)
Dawn Lemelin	19	04:36:00	00:14:30	109 (19), 110 (18), 114 (21), 113 (16), 112 (17), 111 (14), 117 (15), 118 (13), 119 (18), 120 (14), 121 (20), 122 (12), 123 (11), 124 (12), 125 (19), 127 (9), 125 (8), 129 (10), 122 (10)
Janifer Teasdale	5	00:51:00	00:10:12	130 (9), 131 (10), 132 (13), 134 (12), 701 (7)
Fiona Ditty	4	00:34:00	00:08:30	146 (11), 149 (9), 151 (7), 153 (7)
Lorrie Bunkley	15	04:49:00	00:19:18	141 (19), 142 (19), 143 (26), 144 (15), 145 (18), 146 (19), 146 (11), 147 (15), 148 (19), 149 (19), 150 (22), 151 (30), 152 (19), 153 (24), 156 (20), 103 (18), 104 (9), 105 (23), 106 (5), 128 (12), 129 (15), 130 (16), 131 (5), 131 (12), 132 (11), 134 (6), 134 (9), 133 (19), 135 (6), 135 (9), 136 (10), 138 (10), 137 (8), 137 (8), 138 (12), 135 (14)
Edith Rutvey	3	00:25:00	00:08:18	254 (7), 103 (7), 351 (11)
Maryje Godbolt	4	01:00:00	00:10:00	140 (14), 141 (8), 144 (11), 140 (9), 150 (11), 152 (7)
Suzi Varughese	3	00:22:00	00:07:18	351 (9), 305 (5), 415 (8)
Kimi Leonard	2	00:36:00	00:18:00	116 (19), 115 (17)

All room maid activity is logged.

Based on time spent in a single room, an efficiency statistic is created automatically for each room maid.

## FUTURE PLANS OF DEVELOPMENT

Developing a system for optimal usage of mobile app and room console. For operating staff it is best to do as much activity as possible via keycard and room console, and for supervisors and management to get the maximum optimization through mobile app, task management, message exchange, planning – everything is integrated inside a single system via cloud service.

## Security

- Unauthorized access  
Every door opening without keycard will result in „Unauthorized access“ alarm. For maximum accuracy, it is highly recommended to equip the room with PIR sensor (installed near card holder) – this provides information whether the door was opened from inside or outside.  
Other than room entry, this alarm monitors PIR sensor inside a room and window contact. If there is a break-in, all events can be analyzed via LOG.



- Window and door status monitoring



Alarm otvorena vrata

System will alert the receptionist if the door is open for more than 10min.



Alarm otvoren prozor

System will alert the receptionist if the window is open for more than 10min. If a room is located in ground floor, a sound alarm will also be activated.

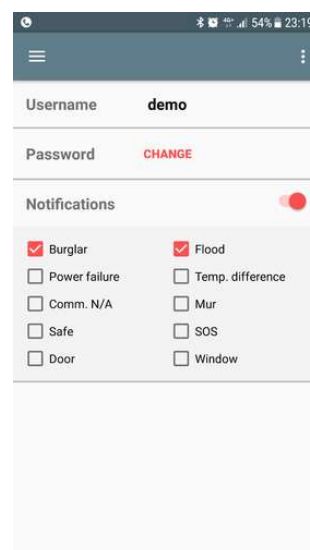
- Room safe control  
Room safe can be opened only with a guest card. Every safe opening is logged. Communication error or unauthorized opening activates the alarm.
- SOS
- Water sensor
- LOG  
All security events are logged and can be later analyzed. Event log consists of when it happened, person who received and confirmed it and when was it solved.

- Central and mobile supervising and control

All statuses and alarms are available via WEB interface. For example, it is possible to establish a single security centre to monitor several hotels at the same time

### NEW in IROOMS v10

Mobile app is available for real time event monitoring. Each user can choose which events to monitor.



## Building facility / statuses

		
Otvoren prozor	Zatvoren prozor	Alarm otvoren prozor
		
Otvorena vrata	Zatvorena vrata	Alarm otvorena vrata
		
Ne smetaj		
		
Tastatura isključena		
		
NAK Ispad napajanja		
		
DC izlazi alarm		

## Room light control

Except for classic push-buttons, to save space it is possible to install special light control keypads. Usually there is a central keypad installed near room console, and two additional keypads at each side of the bed. Each light in the room is represented by a backlighted pushbutton on a keypad. Also, it is possible to program scenes, and each key on keypad represents a certain scene.



Keypads have backlighted symbols that represent a single light or a scene. Also, there is a master key and a led indication for each light or scene.

Based on client or designer request, light symbols and scenes are programmed. Various combinations are possible.

Except standard on-off and dimming control, lately Adria-electronic has been developing and producing DALI devices that can control DALI-equipped lights.

# ADRIA DigitalKey

Developed and produced in ADRIA-electronic, ADRIA DigitalKey enables room entry with smartphone

Older systems can be upgraded to this functionality by simply replacing the card reader.

Digital version of keycard is used for room entry. DigitalKey can be used in 2 ways:



1. **As a stand-alone application where DigitalKey is transferred to smartphone via QR code**

Multiple security levels: it can be locked to a single smartphone or multiple smartphones can use same code. Every QR code readout is logged. Room entry is logged the as same as keycard is used. Custom mobile app design is available (logo, color, ...)

2. **As part of a larger application (iLumio, etc..) where the client app takes care of DigitalKey transfer and usage**

Adria receives a command via PMS, creates DigitalKey and sends it to client app.

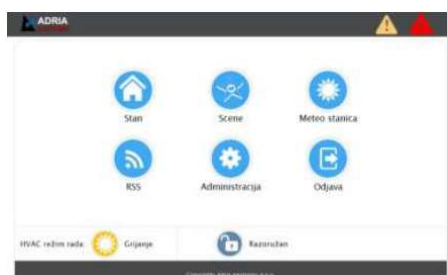


DigitalKey can be used the same way as keycard, for room entry, various access controls, etc...

## FUTURE PLANS FOR DEVELOPMENT: Room control via mobile application

Adria uses mobile apps for controlling light, AC, sunshades, etc.. in residential villas. Currently, this option isn't used in hotels because of estimate that introducing this technology to hotels would result in bigger initial investment price and a more complex system that would require higher staff engagement in guest support.

However, ADRIA system is fully prepared for this kind of functionality upgrade, especially if, instead of guest smartphones, stationary room tablets would be used.

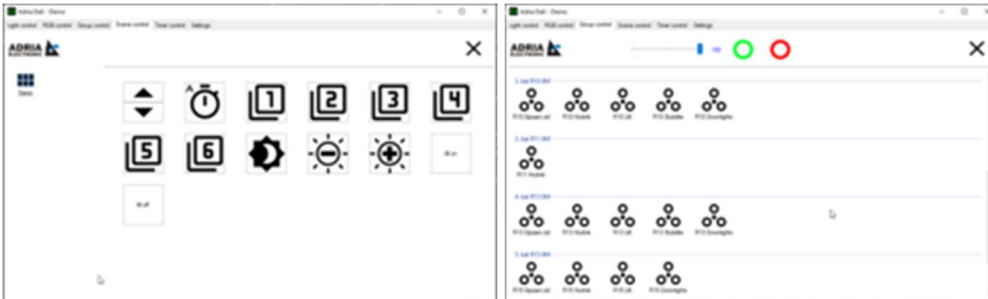


Trends and direction of development in ADRIA MobileControl app will depend on our client's requirements.



## Lighting control

- Two solutions: simple (standard ON-OFF) and complex (DALI)
- In both solutions lighting is controlled by algorithms: manually, timer, luxomat, PIR
- Economic solution: simple and robust ADRIA-lighting protocol
- DALI solution: controlling by DALI protocol (complex algorithms, scenes), ADRIA software for programming and controlling of light scenes.



- Reception and restoran staff is able to control lighting by ADRIA Android application (run scene or turn on/off each light separately):

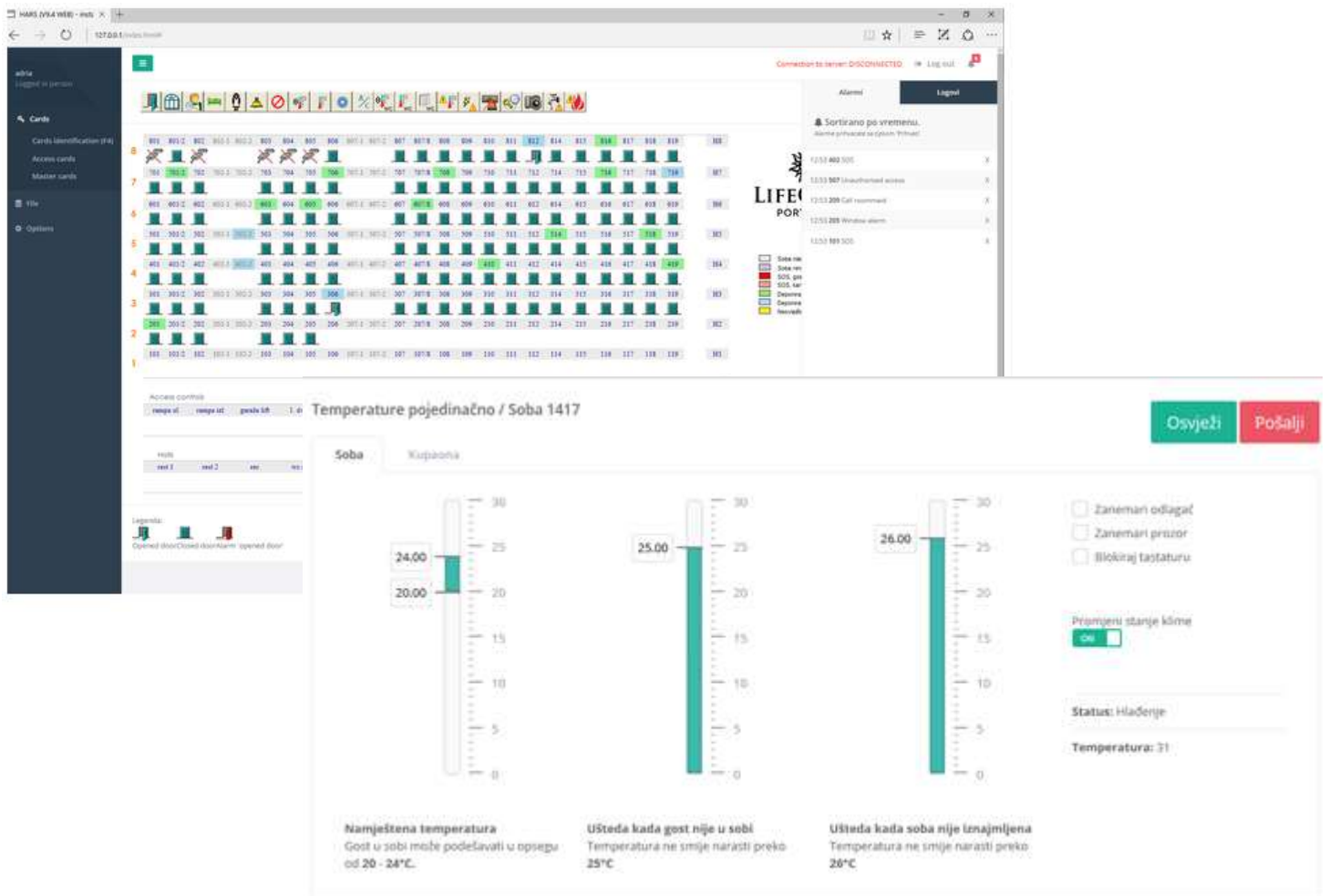


## SOS – toilets for invalids, sauna

- Alarm is controlled by central application
- Special alarm siren can be used for very important alarms (in security room)

## rooms 10 – new web interface and mobile application

- More simultaneous connections due to improved and optimised data protocol
- Larger and user-friendly alarms list
- LOG and status distribution to housekeeping, maintenance, security... through standard web browser



Mobile application is connected to cloud database and refreshed in real time by central software. Besides overview of standard information, this application can receive events and alarms notifications. User can use filters to get specific list of rooms, for example all clean rooms, DND rooms, rooms where mini-bar must be checked...

