HOME AUTOMATION SYSTEM

HOMIDUS

TECHNICAL DESCRIPTION



1. Introduction

The principle of operation of the **HOMIDUS** modules is based on the idea of creating a **'Smart Home'** without changing or modifying in any way the existing wiring or cable infrastructure of an establishment as well as keeping all existing electrical equipment such as light sources, sockets and switches while combining that with dramatically lower cost compared to competitive products.

HOMIDUS utilizes the existing residential network (WiFi) - since the majority of people have Internet access today via wireless routers. A single module and the available via PlayStore corresponding free application comprise the first step in adding "Intelligence" everywhere.

HOMIDUS range of products support the control of all kinds of lighting devices, floor, table or ceiling lamps as well as several types of appliances. All modules can be programmed to execute operations via motion detection, time scheduling or upon certain conditions related to the environment such as room temperature, luminosity etc. They also allow interconnection with a wide range of sensors and additional electronic units such as alarm systems, garage doors, electric shutters, and irrigation systems via their analog and digital inputs and outputs. Last but not least the entire system can be used in combination with a great range of surveillance cameras allowing their management and control through the HOMIDUS dedicated application.



2. HOMIDUS devices

After obtaining HOMIDUS devices from the market, we have to install them inside the house and connect them with the appliances we want to control. Depending the type of the device, the installation differs and in most cases there is no need to be made by an electrician.

> Plug

It is designed for wireless management and control of devices that get plugged to wall sockets. It features relay and dimmer functions for controlling appliances, IR receiver to control devices utilizing any available remote control. Small in size and very distinctive yet very low-priced and flexible in operation, it comprises the best solution compared to similar products in the market.



For the installation, we have to put the device to the wall socket and the appliance's plug (SCHUKO) to the front face of the device. The appliance then can be remote controlled via HOMIDUS application.

> Light Control

Designed for ceiling light devices wireless management and comprises together with Plug the two major system products. While retaining the traditional control of ceiling lights adds a series of wireless management capabilities - also encountered in the Plug - while incorporating new features towards automation like programmable operations, certain conditions related operations etc.



The size of the module, the ease of connecting and using it, the quality in combination with the low cost make it an ideal solution when adding automation is required.

> Mini Light

Designed to be integrated within small-dimensioned ceiling lights. It is a mini version of the Light with an even lower purchasing cost.



> RGB Strip

RGB Strip designed for driving RGB strip typed lighting combining the automation that HOMIDUS family offers with the option for the user to choose any type or dimension of RGB strip wishes, maintaining of course all the advantages of this type of lighting as regards color change and illumination control.





Data Control

It is a single unit with a set of inputs and outputs, ready to perform conditional operations, either scheduled or under real-time commands. A wide range of inputs can handle several analog and digital sensors available in the market while additional relay driven outputs combined together to comprise a product that



can be easily adapted to the network. It can be controlled and programmed wirelessly while apart from performing actions it also informs the system administrator in real time regarding the overall HOMIDUS system. It also incorporates integrated temperature and brightness sensors.

> Cam

Focusing towards security as well as keeping the administrator informed about his premises HOMIDUS includes the software module 'Cam'. It allows the user to add, control and manage a wide variety of surveillance cameras at no extra cost in the same software platform while it can perform even rotation commands in case of PTZ cameras.



> DIN Rail

It is an electronically controlled switch, that can be placed in any electrical panel, giving the ability to control electrical appliances directly connected to this panel, through HOMIDUS application. These appliances could be one of the following: lights, boiler, air condition, water heater, moteur and many others.



> Thermostat

It is a module that controls two electronically switches. The first one controls heater operation and room's temperature and the second one the boiler operation.



> Alarm

Alarm is a smart device that gets connected to wired sensors of an existing alarm system. With this device, we upgrade the functions of the existing alarm system by visualizing the changes that happen when someone open/close a door/window, moving inside a room and many other. User gets this information, even if the alarm is not energized. He also gets informed when an alarm is activated and has the choice of remote enabling the alarm (like



panic function). At last, we have included an SMS module, that gives the option of sending the zone number that gave the alarm, but also can be used to inform the user for any event will happen in other HOMIDUS devices.

3. HOMIDUS application

After installing any type of **HOMIDUS** devices, we proceed in downloading the software, that is needed, in order to remote control the HOMIDUS devices and in extend, the appliances which are connected to them.

The software **HOMIDUS** is found at Google Play:

https://play.google.com/store/apps/details?id=com.amdp.homidus

and at our server:

http://www.homidus.com/

We have to download HOMIDUS application and install it to our Android mobile or tablet. After installing it, we have to select language in Android Settings. Available languages are: English, Chinese and Greek.

After that, we open HOMIDUS app by selecting this icon:



HOMIDUS application

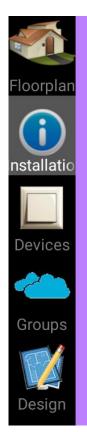
Introductory screen







Swipe to left





Place the device to socket

Swipe to left





From menu choice:Setup select your SSID and then press Device scanning

Swipe to left and press "Select Installation"





Congratulations! You have control over your devices

Select Installation

Installations

From tab **Installations** (at left Toolbar), we choose the active Installation (yellow color). The active (selected) Installation is the house or any other building, that has the appliances, we want to control. Demo installation has some virtual devices only for demonstration purpose.

By pressing (+) sign, we add a new Installation to the list, giving its name.



From Settings button, we can change Installation name, the Installation and see WAN IP of the Installation.

select the floorplan for

Delete Button is used for deleting an existing Installation

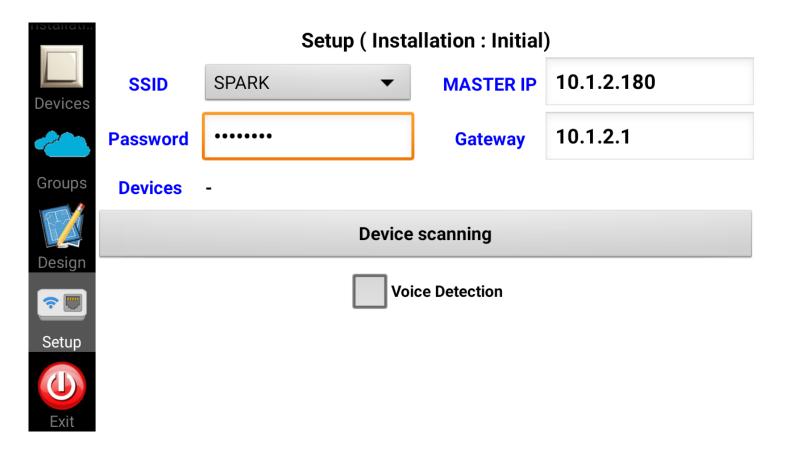
By pressing "Floorplan" from left Toolbar, we get floorplan view, for the selected Installation. The image of the floorplan can be changed by providing new one, coming from an existing drawing (JPG) of the Installation or from mobile Camera or by using the drawing program – we have included in this application.



This is the main screen of the application and the place where all our devices-appliances will be displayed and controlled.

Before adding our devices to the Installation "**Initial**", it's important to have selected it first, from Installation List. The reason is that the selected Installation is the one that will take the devices from the next procedure.

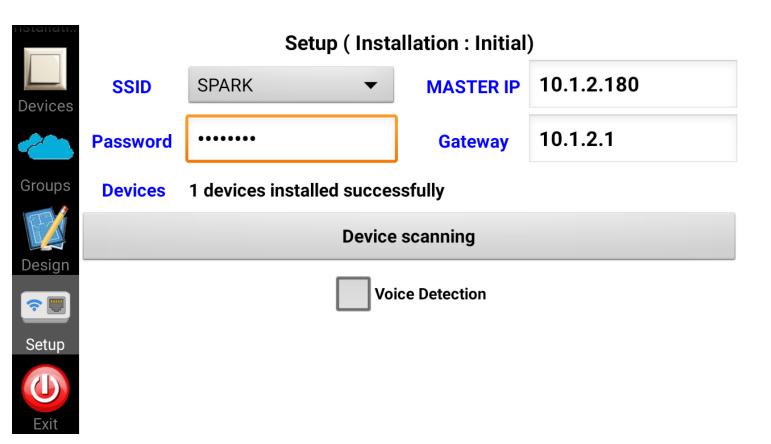
Devices



HOMIDUS utilizes the existing residential network (WiFi) - since the majority of people have Internet access today via wireless routers. In order to configure HOMIDUS devices, we have to provide them with the credentials needed to connect to the existing WiFi router of our installation.

So, having selected an Installation and pressed Settings from Installation Tab, we have to provide SSID and Password of our Router. Then we press button "ADD DEVICES" and wait until all un-configured devices get configured (see flashing rate of found devices that start blinking at 1 Hz rate).

Select FLOORPLAN tab from left sidebar and all configured devices will be displayed on floorplan one besides the other. Move each of them to appropriate positions. Selecting any of them starts blinking and can be controlled through the controls from right sidebar.



Next, we return to our Floorplan. The device has been inserted to the selected Installation successfully having HOMIDUS plug icon.



Long press and drag icon to the point of the floorplan, that is physically placed. We see the name of the newly configured device (New Device) as well the right toolbar changed.

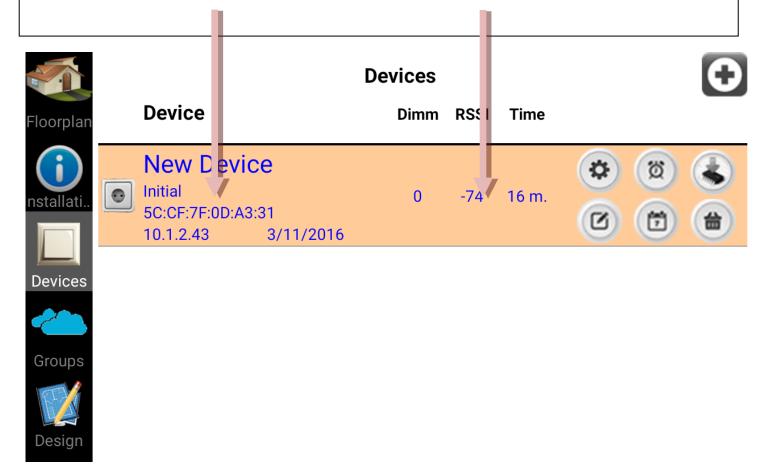




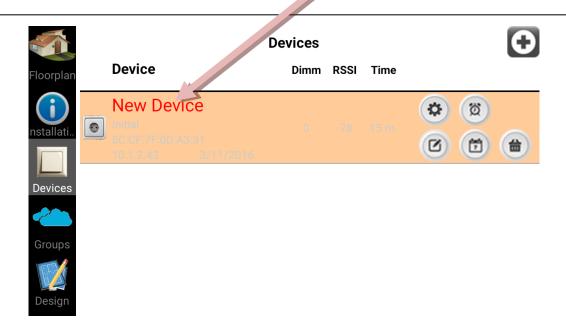
If we want to control any device, we must **select** it first, by pressing on it. Then this device will start blinking. It is the **selected** device. Now we can press ON and OFF buttons to control it.

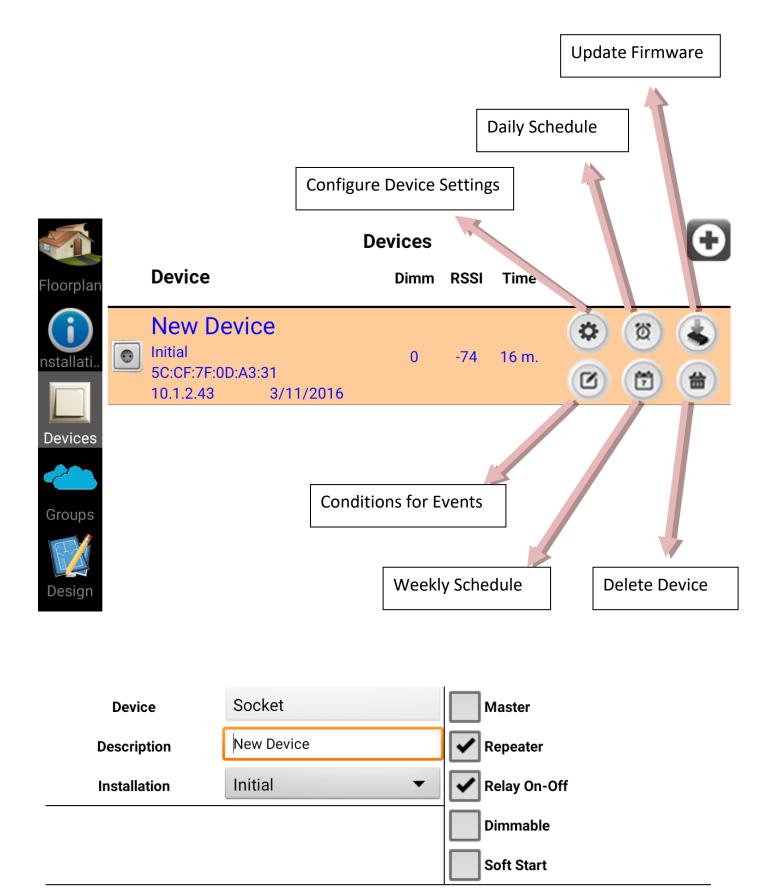
Going to Devices tab of the left Toolbar, we get the list of all the configured devices of the selected Installation. In our case, we have only one for the moment (New Device).

In this screen, we see that New Device belongs to Initial Installation, we get its MAC address, IP address and version number (as date). Next to them, we get Dimmer value (0), RSSI (signal from router: -74 dbm) and time from last boot (16 minutes).

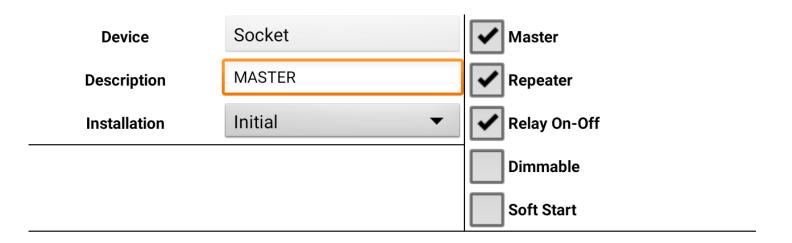


ATTENTION: If the color of any device in this list is **RED** and then this device is **not valid** as a HOMIDUS device. Valid devices are **BLUE**.



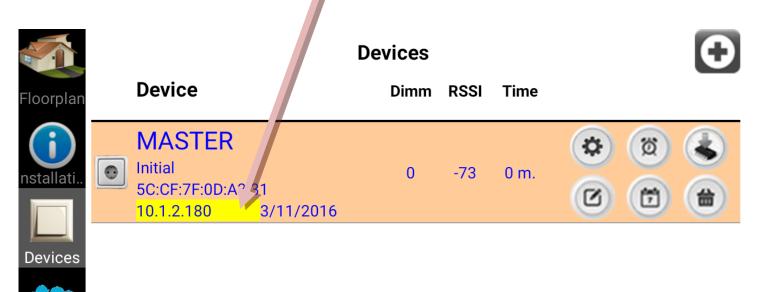


Pressing button "Configure Device Settings", we get this screen, where we can change Device name, the Installation that belongs and some other characteristics of the device. Such as, if this device will be MASTER, Repeater, if it will use Relay, Dimmer or Soft Start control.



Having set all the attributes we prefer for each device, by pressing Back , all these settings go to device.

Returning back to Devices list, the device is getting the changes and shows them accordingly. At this point we get IP Address of the device

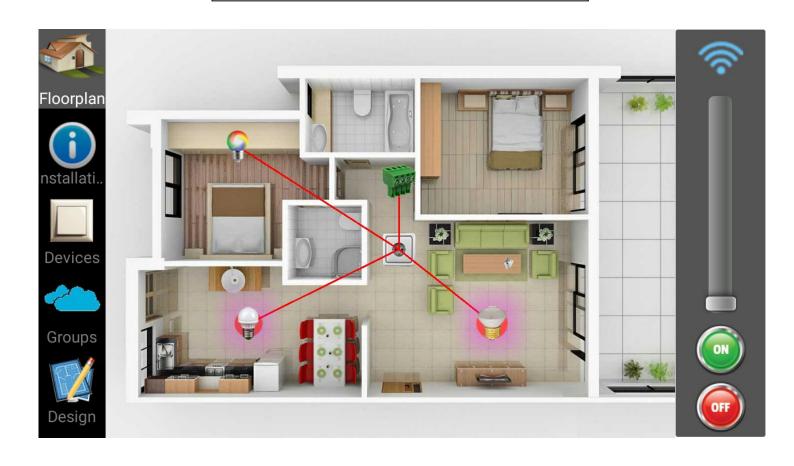


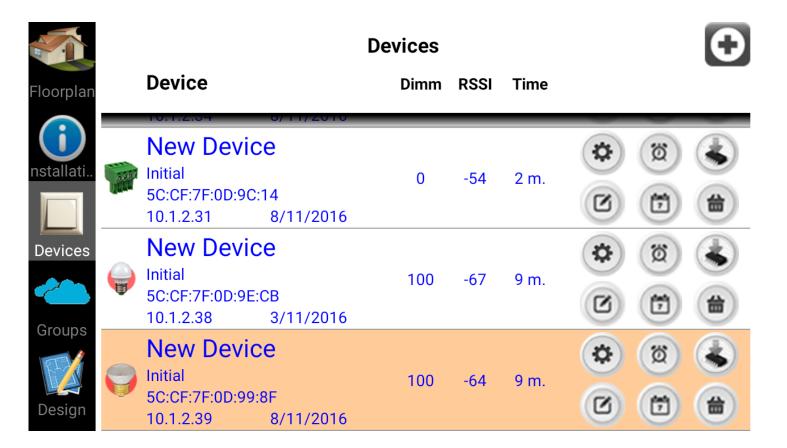
Groups

Going back to Setup tab and scan for other devices (that are powered up), these are being added to the floorplan.

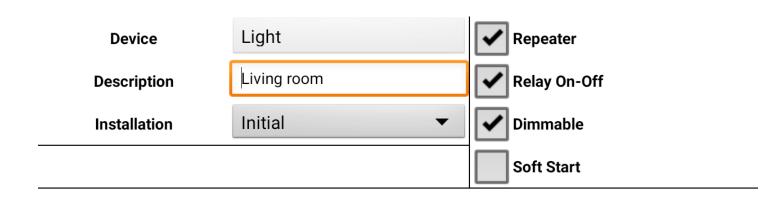


Next, we drag them to their physical locations.

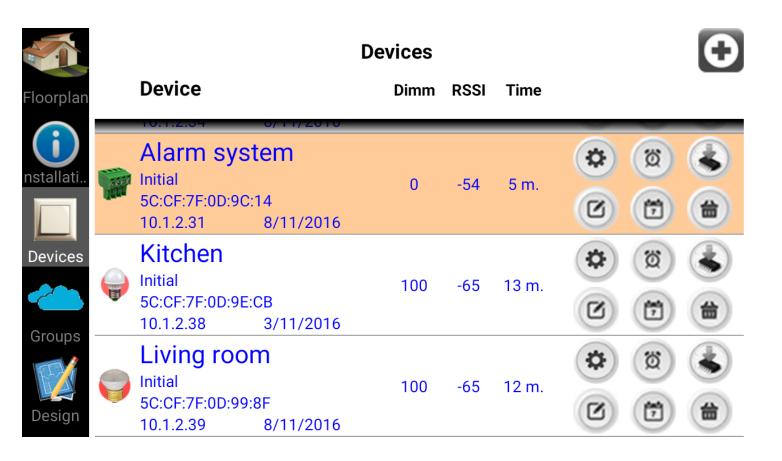




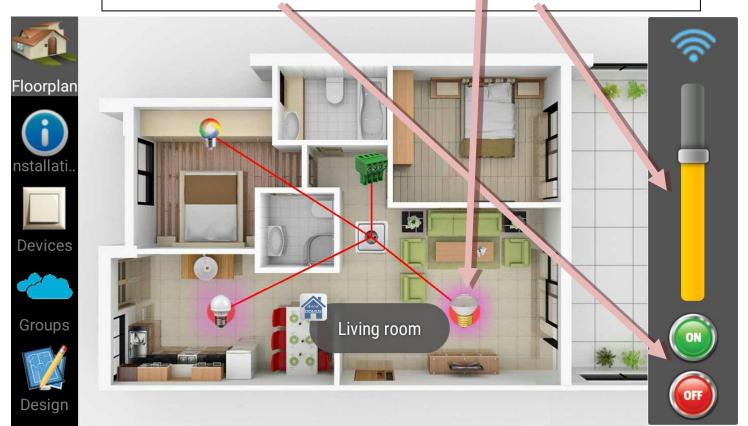
For every new device, we set the information we want, as we did before.



At last, all the devices have been configured, renamed and are ready for operating them.



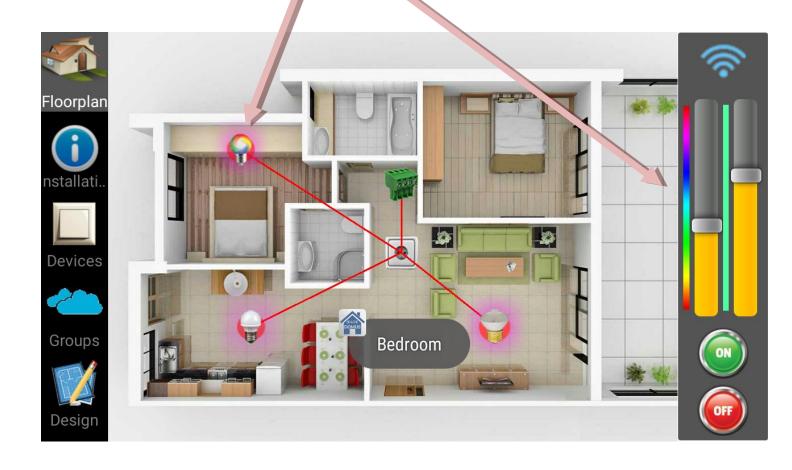
Pressing on each icon, the device icon starts blinking, the name of the device is showed up and the right toolbar changes, giving us the available operations of the selected device. Living room is a HOMIDUS Light device and has ON-OFF operation and dimming capabil ty.



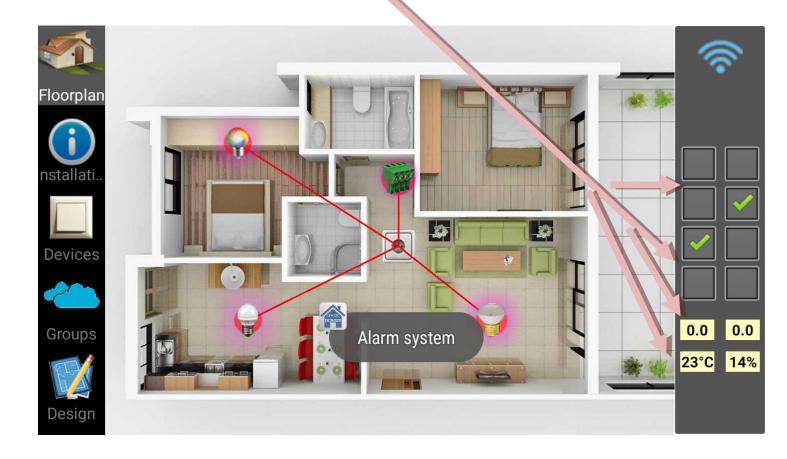


The device with name Kitchen is a HOMIDUS Mini-Light device with ON-OFF operation.

Bedroom is a HOMIDUS RGB Strip device with adjustable color and luminosity.



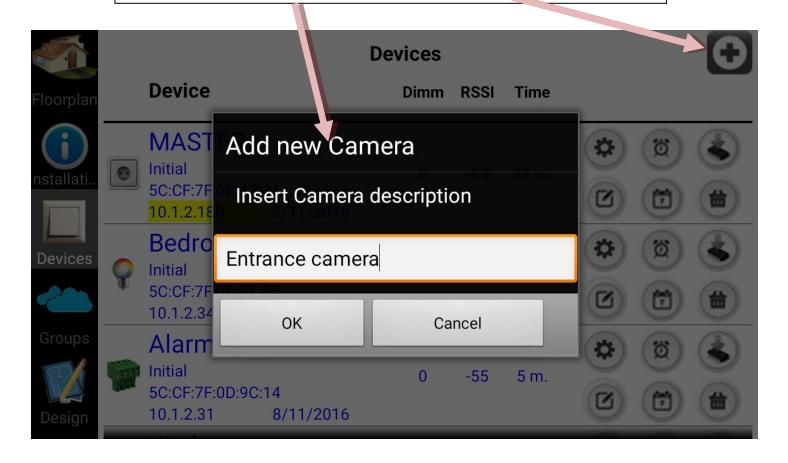
The device that we named "Alarm System" is a HOMIDUS I/O Data Control device that provides 4 general purpose I/O controls, 4 relay dry contacts (normally open), 2 analog inputs (up to 15V max), temperature and luminosity readings.



The I/O Data Control device can be used in many applications, giving us information about measurements we want to take, such as: inputs from an existing alarm system, status from other electronic devices that give some output, control irrigation systems, fire alarm notification, thermostat control and so on.

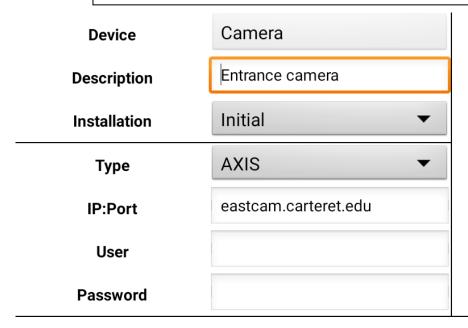
I/O Data Control device needs 12V power adapter to operate.

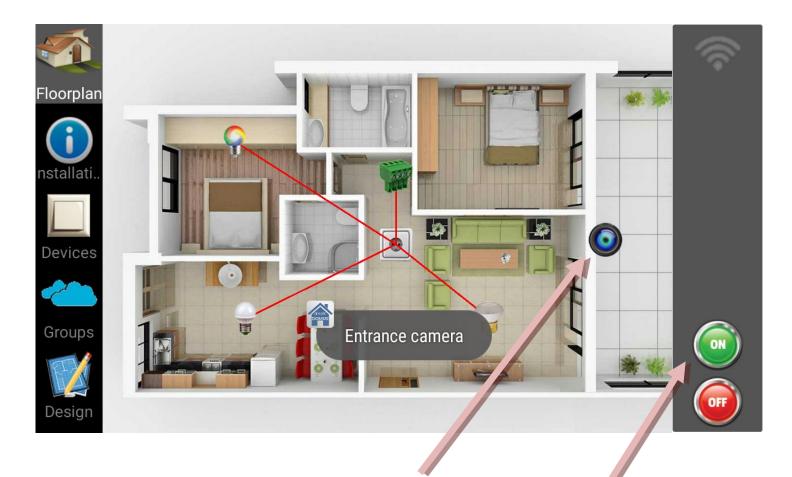
Pressing (+) sign from Device list screen, we have the option to add a S/W HOMIDUS CAM module.



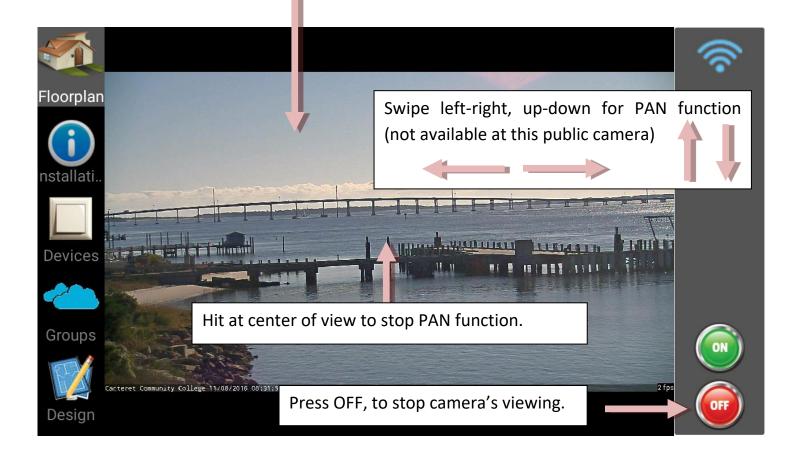
A dialog is opening, where we can set the name of the S/W CAM module and the needed info for the camera to connect.

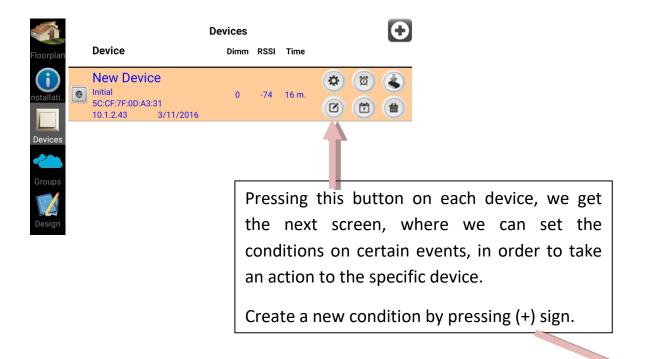
The Cam Module can read MJPEG stream of certain types of cameras and can provide Pan function (if it is available).





After placing CAM module to the desired position, pressing ON, after a while (and if given credentials are correct), we get the stream of the camera inside the main window (in front of the floorplan).



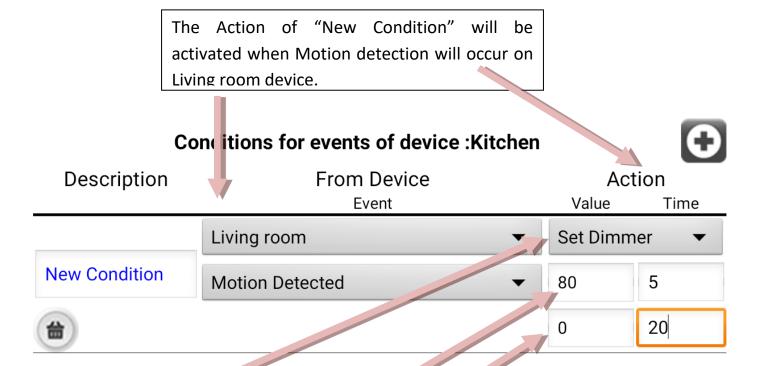


Conditions for events of device :Kitchen



Description From Device Action

Event Value Time



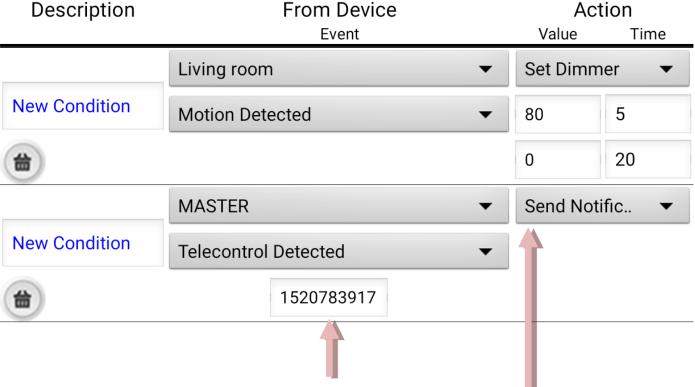
The Action (Set Dimmer) that will be executed, will happen in two phases:

Phase 1: after 5 seconds from the Motion Detection in Living room, Kitchen device will set its Dimmer value (will be turned ON) at 80%.

Phase 2: the appliance at Kitchen will remain ON for the next 20 secs and after that, it will set its Dimmer value to 0% (will be turned OFF).

By this feature of the application, we can turn on-off lights, when motion detection occurs in the same or in a different room, notify us when a critical event will happen (alarm system, fire detection, liquid detection etc), AC power fail, control appliances through any infrared remote control, set up heating by temperature changes, control window blinds by luminosity, read A/D from other electronic devices and take actions combining all of them and many more.

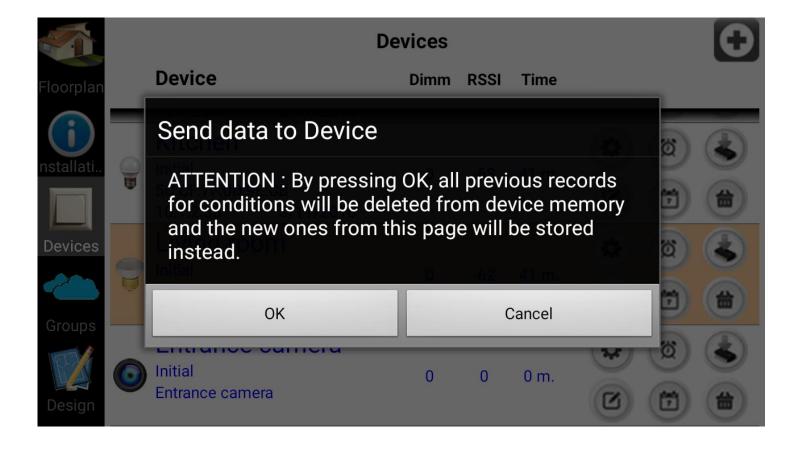
Conditions for events of device :Living room on From Device



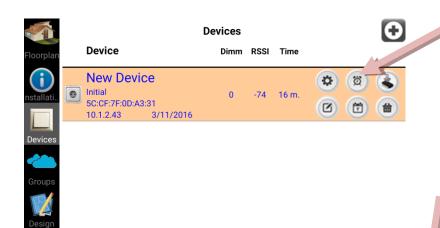
In this example, Living room device will Send a Notification to our mobile Phone, when MASTER device detects a certain keystroke (ID:1520783917) pressed by an infrared remote control. To obtain the ID of any key of any remote control, you have to press this key, before entering this field .

To activate previous two Conditions, we have to download them to Living room device. When we decide to download them to device, all previous conditions from device's memory will be erased and will be replaced by the new ones, written here.

If we want so, we press OK. If we press Cancel, the old conditions will remain to device (remain active) and the new will remain on phone (remain inactive, till we send them to device later).

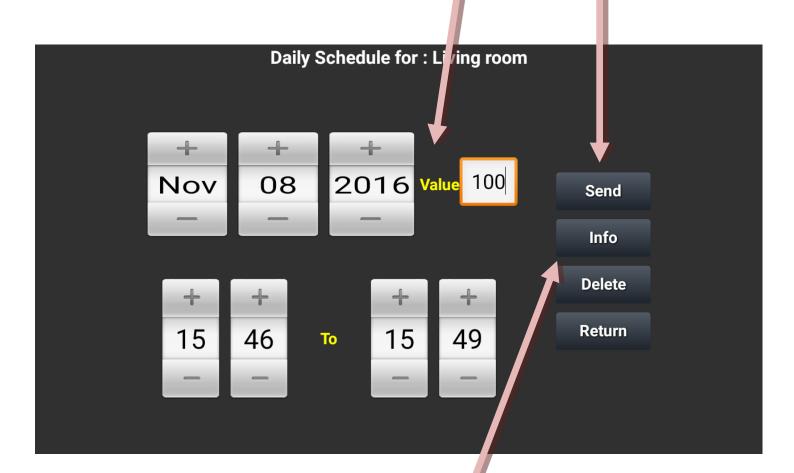


It's important to test the conditions we have created, in order to validate proper function and avoid false actions.



Pressing this button on each device, we get the next screen, where we can set a daily schedule for a certain device.

So on 8/11/16 and at 15:46 Living room device will be turned ON (100%) and turned off at 15:49. We have to press Send to activate the Schedule.



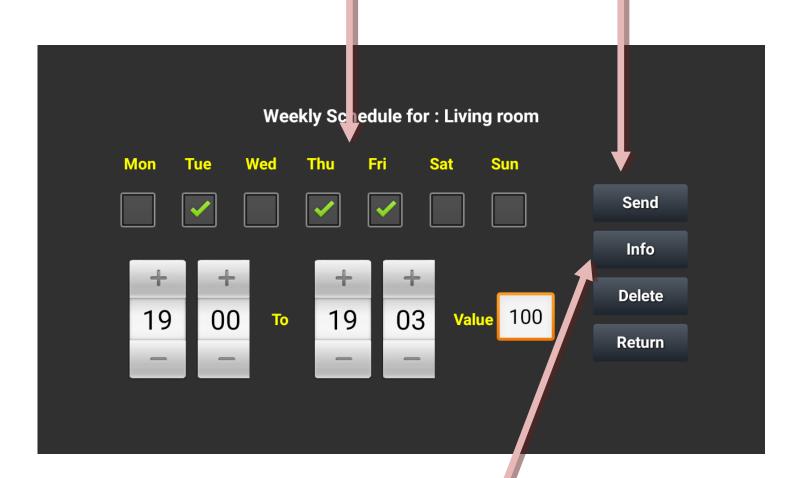
Button "Info" informs us with the stored Daily schedules from device memory.

Button "Delete" deletes all the stored Daily Schedules from device.



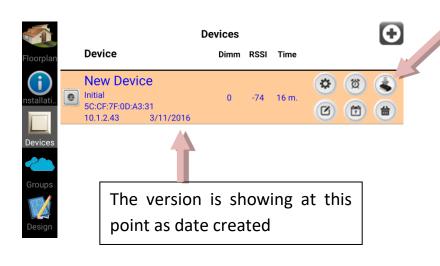
Pressing this button on each device, we get the next screen, where we can set a weekly schedule for a certain device.

So on every Tuesday, Thursday and Friday Living room device will be turned ON (100%) at 19:00 and turned off at 19:03. We have to press Send to activate the Schedule.

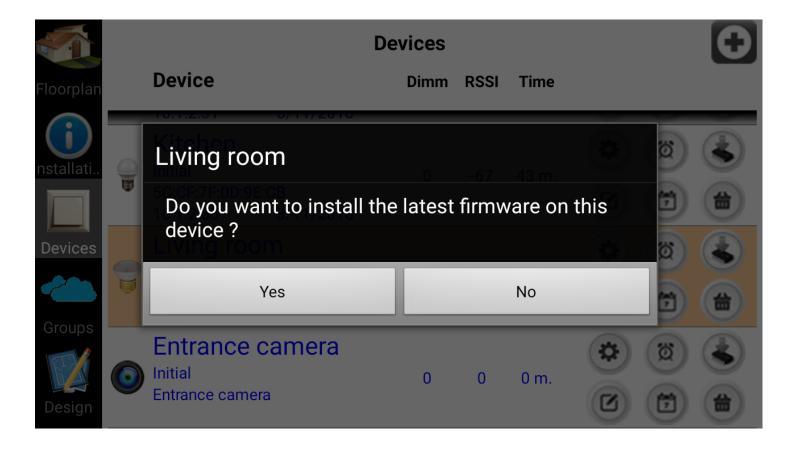


Button "Info" informs us with the stored Weekly schedules from device memory.

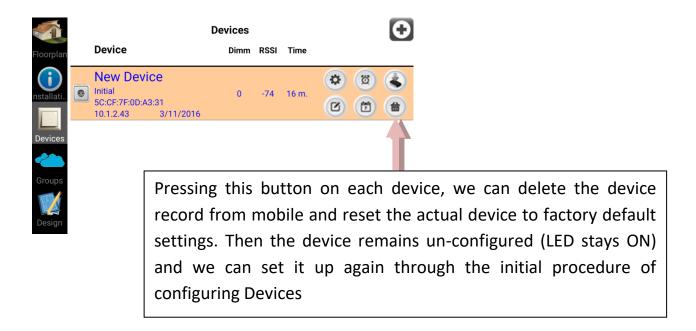
Button "Delete" deletes all the stored Weekly Schedules from device.

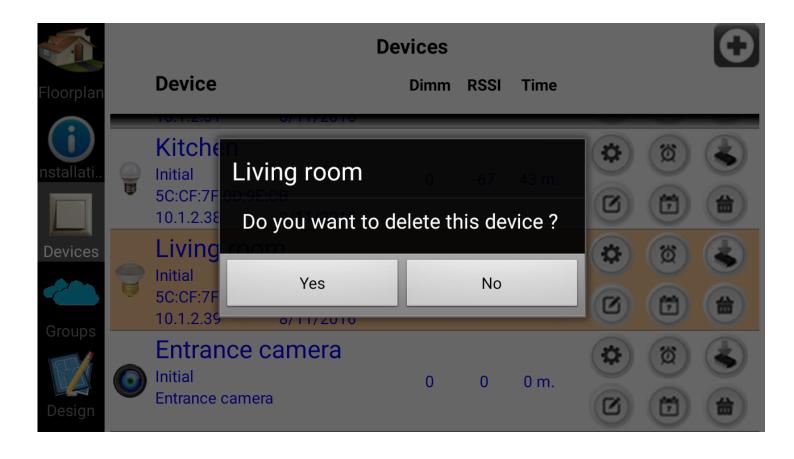


Pressing this button on each device, we can request for the latest firmware of this device.



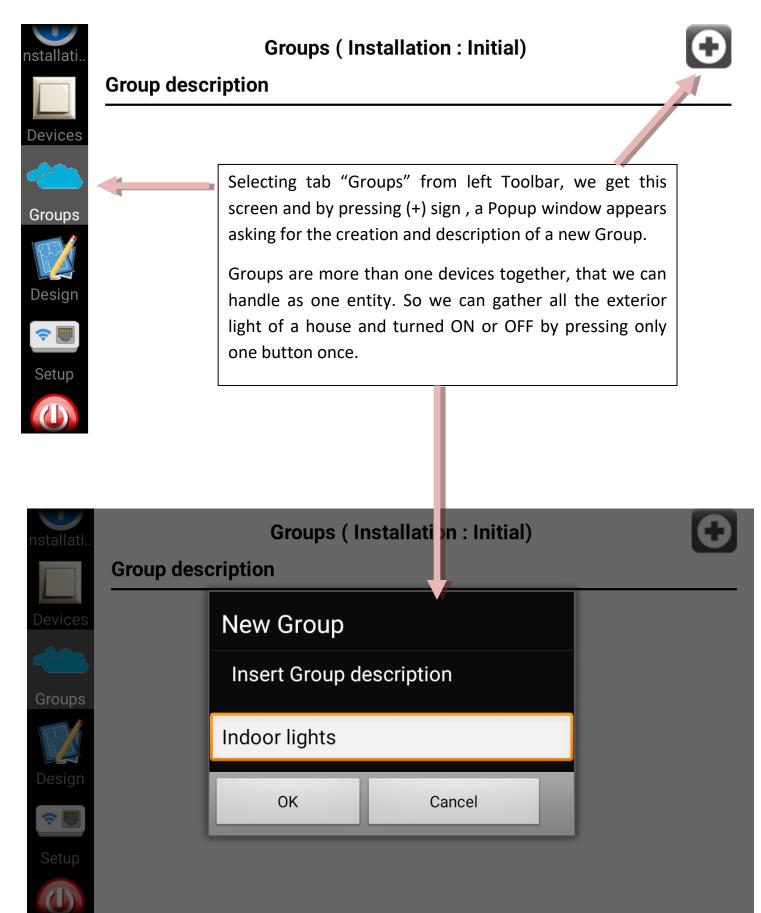
This action requires Internet connection at local network, set a Plug device as MASTER and configured it correctly (IP,Gateway), in order any other device can download new firmware. The procedure will take some seconds to complete and if it will be successful, you will see the new date of the latest version at the place of the old one.

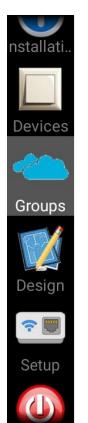




At any time, we want to delete/reset a device (and loose configuration, such as router SSID and password, MASTER IP, gateway and other settings, like schedules, conditions on events etc), we have to press Reset button on device (inside a small hole at device side) for 2 seconds. Immediately, the LED stops blinking and stays ON, showing that RESET occurred successfully.

Groups





Groups (Installation: Initial)



Group description





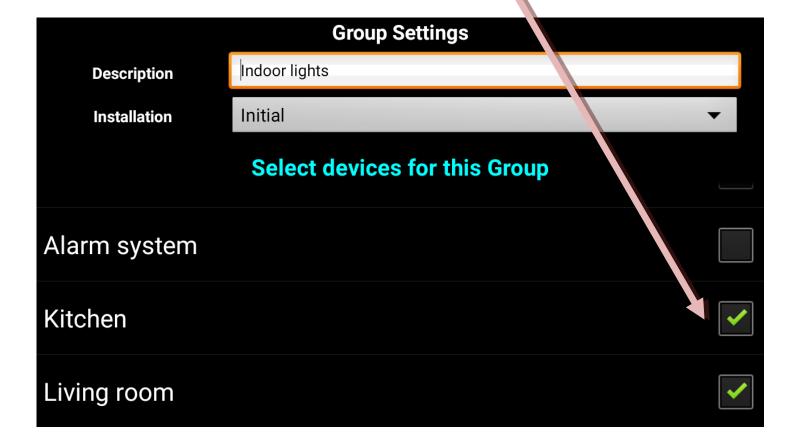




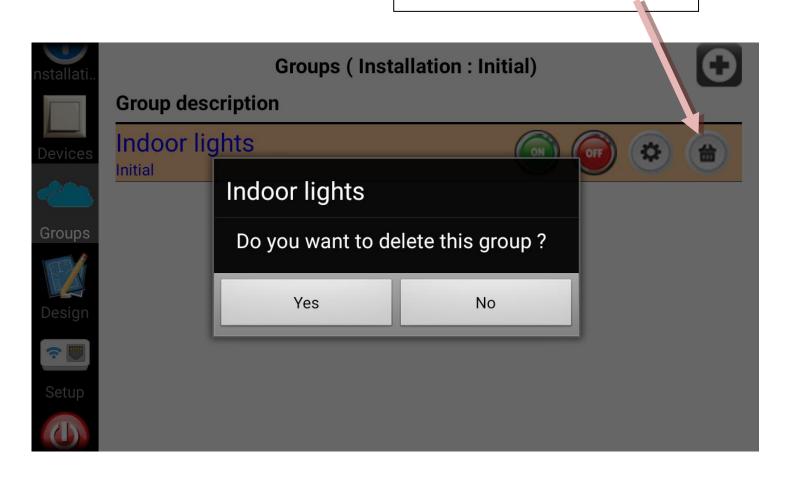


Before press ON or OFF buttons to control group appliances, we have to indicate which devices belong to this Group. We do that by pressing the button indicated by the arrow.

In the next screen, we check the devices that we want to belong to this Group.



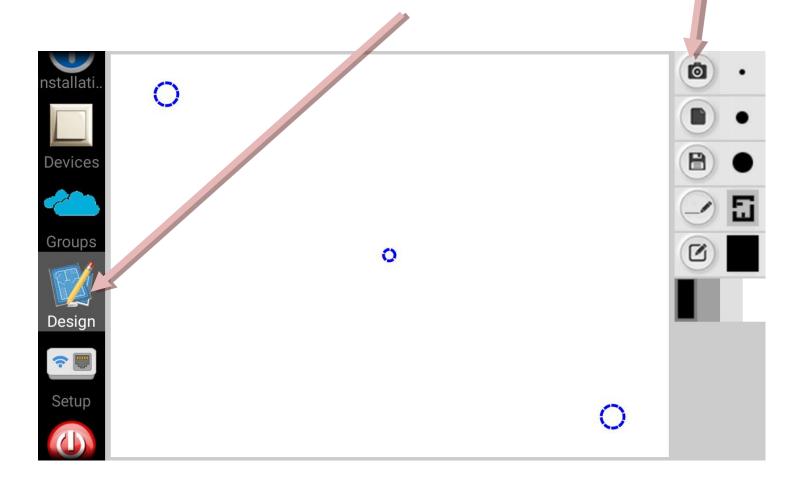
Delete button asks permission to delete the selected group.

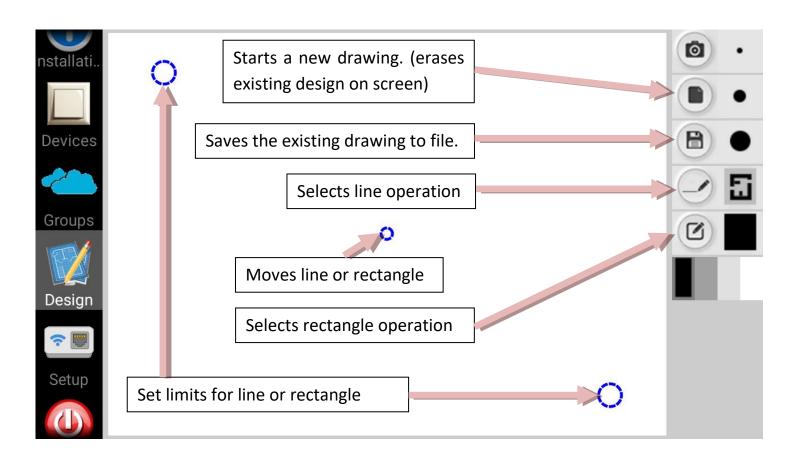


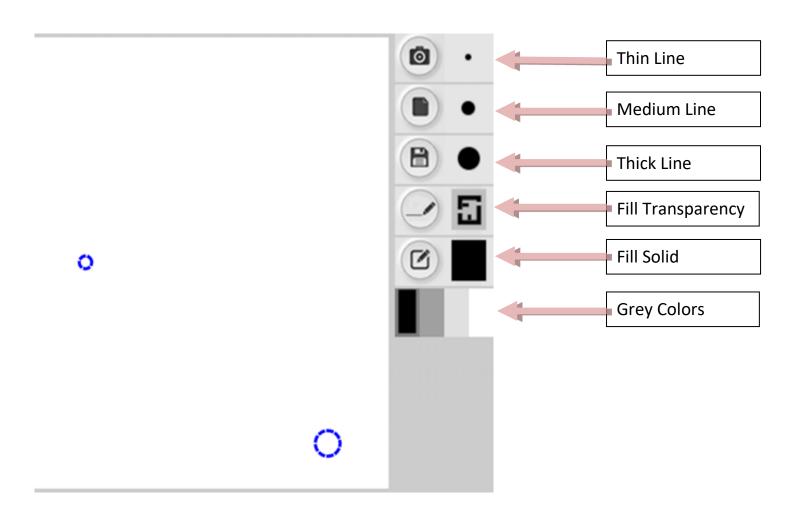
Design

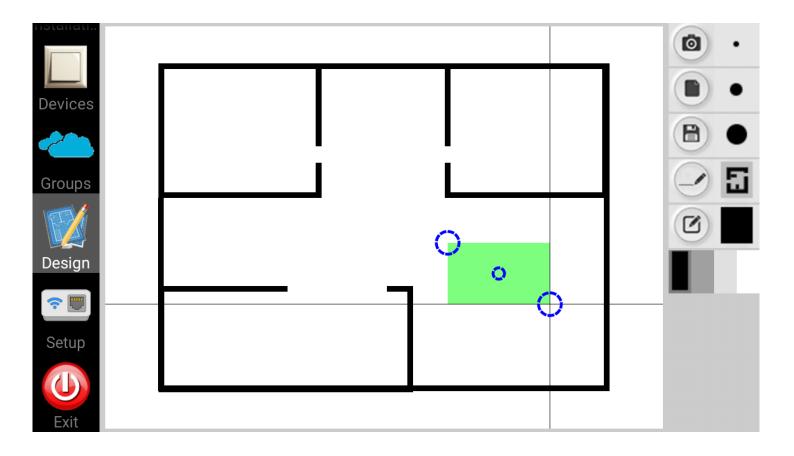
We saw before, how we can assign an existing floorplan image for a specific Installation through Installation settings. All the floorplan images are found at /homidus folder at mobile's storage, having .jpg extension. The ways, we can create new floorplan images, are three:

- 1. Get an existing floorplan image of your house/building, or create it with the aid of any drawing application. Then save it at /homidus folder of your mobile, as a JPG file.
- 2. If you an existing floorplan design in a hard copy, you can use mobile's camera to get a snapshot of this design. For this choice, you can press "Camera" button (as seen at the next screen). This screen is shown, when we press Design from left Toolbar.
- 3. The third option is to design the floorplan by ourselves, using the embedded drawing program.





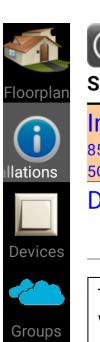




This is a test floorplan we created with very little effort in about one minute. After that, pressing "save" button and giving the name of the drawing, it gets stored to mobile's storage area.

Then from Installation settings and having select the Installation we want, we assign this drawing to the specific Installation.

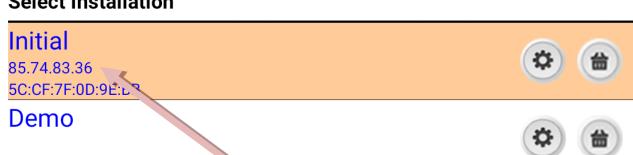
<u>Offline – No Connection state</u>



Installations



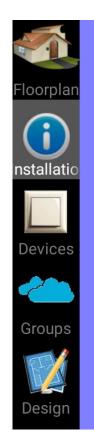
Select Installation



The devices can be controlled while are powered up and connected to local network. When we are in the same local network inside the house or building where the devices are located, then we can control them via HOMIDUS application. When we are outside the house, then MASTER device has to be configured correctly and our mobile phone must have access to Internet. Then selecting the Installation —we prefer— HOMIDUS finds WAN IP of our house and after a while, it shows the connected devices. Unconnected or turned off devices (manually from switches) are shown with an X in front of their icons. Besides at every user's interaction with any device is followed by an answer from device (if it's connected) or a blue indication at the top left corner (as seen below). Grey indication means No Connection.



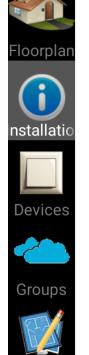
Introductory Screen



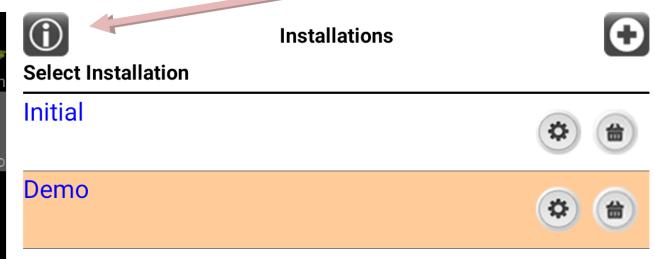




Introductory Screen is shown up at the first execution of the program. If we want to see it again, we have to press button (i) at next screen.



Design



Installation Selection

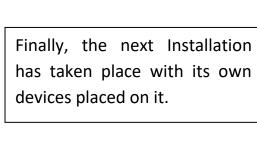


You can change Installation if you select it from Installation list or by swiping main window from right to left and opposite (as shown by the arrows).

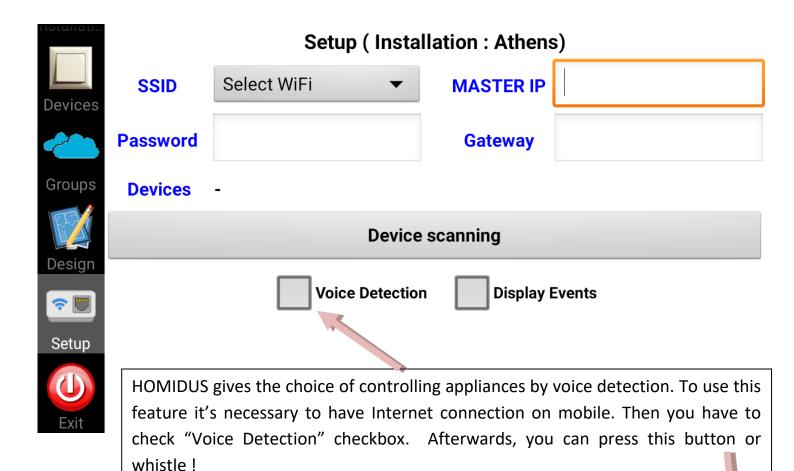
The old Installation leaves the window and the next one from Installation list is coming.



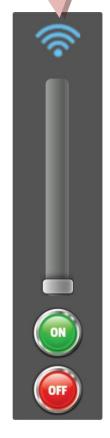


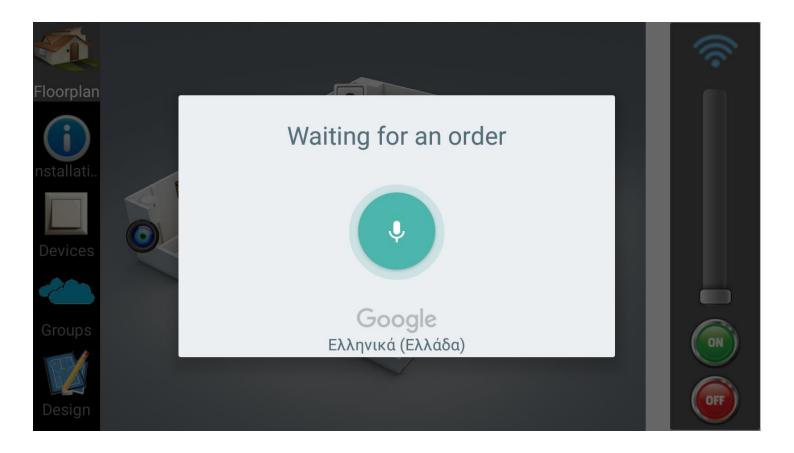


Voice detection









When this screen appears, we can speak the name of the device as we have written it at Devices' list. If it will be recognized correctly, the device will change state (from ON to OFF or the opposite). We can use expressions too. For example, if the device is called Kitchen, we can say: Turn ON Kitchen, turn the lights OFF at Kitchen, etc. Words you can use are: TURN ON, TURN OFF, INCREASE, REDUCE, ANOIEE, ANAWE, KAEISE, SBHSE, Δ YNAM Ω SE, EAATT Ω SE (Greek) with the name of the device always.

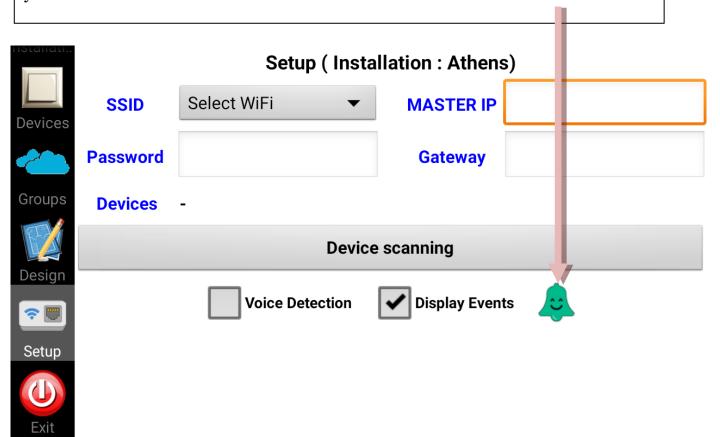
If the command succeeds you will hear a confirmation notice signing the new state of the device.

Setup for Notifications

HOMIDUS has the option of sending a push notification to your mobile, as soon as an event of any device appears and of course we have set a condition for that event. The message included in push notification shows the type of the event (like motion detected, infrared key pressed, AC power fail etc) and the source device of the event.

To enable transmission of push notifications, you have to register to a free service called Pushetta (www.pushetta.com).

After signup and login to Pushetta, go to Dashboard and get Your API Key as it is shown in Dashboard page. Then you have to declare this API Key to HOMIDUS application. Next get MASTER's MAC address and from tab CHANNELS in Pushetta, add a new channel giving as Channel Name, the MASTER's MAC address. Fill all the required info as you like and make Kind=Public and check Hidden flag. Press Create and you have created your personal channel in Pushetta that will receive the events from HOMIDUS system. The last step is to install too, the Android for Pushetta from https://play.google.com/store/apps/details?id=com.gumino.pushetta and add to this program your previously created channel (settings button, up right corner) giving the same channel name (MASTER's MAC address). Now, you are ready to receive the events that HOMIDUS will send through Pushetta's service, without HOMIDUS application being active. Of course for this service you have to be connected to Internet via mobile.



General instructions

HOMIDUS uses advanced encryption methods for exchanging messages among devices and mobile phone.

As stated before, HOMIDUS uses existing lighting, existing electrical cable system and existing switches. For all the HOMIDUS modules there is permanent power supply as they are constantly connected to mains power, immediately or through power supply transformers. Except HOMIDUS Light and Mini Light that are connected through wall switches. That's why we have configured these devices to turn on the attached lights to them as soon as the user turns the wall switch on. From that point we can remote control the appliance (after a few seconds, while connecting to WiFi) with HOMIDUS application. It is obvious that if the wall switch turns off, HOMIDUS Light device can't take power supply to operate, thus it cannot be controlled by the application.

For some operations, Internet is needed. Such as: Remote control from outside the house/building of Installation, control appliances via Voice recognition, Firmware update, Send notification. All the other operations are carried out by the local WiFi network.

ATTENTION: Always disconnect mains power, before making any change to any circuit that uses power supply 230V AC, to prevent electric shock.

Restore Factory settings

When we want to reset a device to factory default settings, we can do it with one of the following ways:

- 1. While device is powered up, press Reset button on the device for 5 seconds
- 2. While device has been connected and viewed by HOMIDUS application, then we can reset it by pressing Delete button on Devices tab for the selected device.

When device has been reset, it will reboot and its LED will flash rapidly, waiting to be configured.

Led indications

Every HOMIDUS device has a LED indicating device's state.

Before device Configuration: If device is un-configured, LED flashes rapidly. At this state we cannot control it.

After device Configuration: If device has been configured and powered up then the LED stays ON until it connects to Router. When it establishes successful connection with Router then it starts blinking every second. This means that all are OK and we can control it through HOMIDUS application.

When a device has been configured and connected to router, then it starts flashing once every second. If the device is turned ON then the time that stays ON is more than the time that is in OFF state. So, we can distinguish, if the device is at ON or OFF state.

Troubleshooting

All HOMIDUS devices come with factory defaults settings. That means that they contain only the necessary info for the type of the device and of course the embedded firmware.

Before device Configuration: At power up, the LED on the device flashes rapidly, showing that this device is un-configured.

If LED does not light at all, check power supply and proper wiring.

At device Configuration: While you are in the phase of scanning new devices, in order to add them to the selected Installation, it's crucial to go near to the unconfigured devices with your phone, because this operation needs that. After a while all the devices will be configured one by one or all together, while you are moving towards to them.

After device Configuration: After setting device configuration, LED starts to blink every second to the configured devices. This is indication of properly connection to router. If after configuration, LED is constantly at ON state, make sure that router and its WiFi is working, that you gave correct credentials at configuration (SSID, password).

In any case you don't have access to your device or you want to return it to factory settings, then you have to press **Reset** button for five seconds. The device will reboot, all settings will be erased, the LED will start flashing rapidly and it will be waiting for the new configuration.

As soon as, we add new features to HOMIDUS devices or discover and fix possible bugs, we will set the new firmware available to our server, so you can upgrade your devices and enjoy new functionality.

Device Characteristics

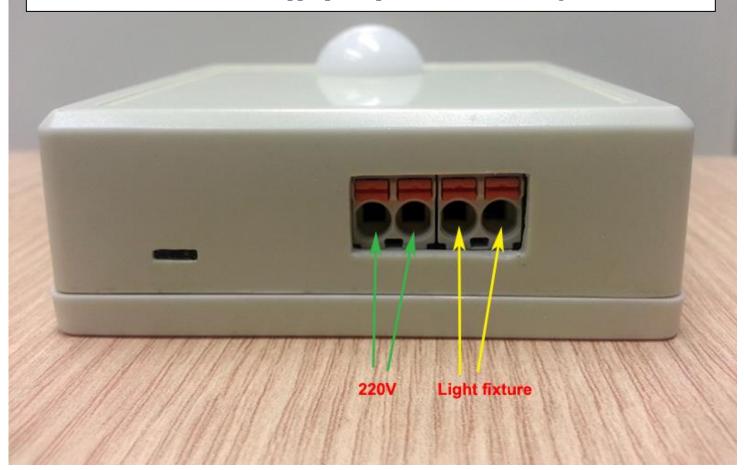
| | | | 300 | | |
|-------------------------|----------|-------------------------|---------------|--------------|-----------------|
| | Plug | Light | Mini Light | RGB strip | Data Control |
| Code | SD-10 | SD-20 | SD-30 | SD-40 | SD-50 |
| | | | | | |
| Encryption | + | + | + | + | + |
| Led | + | + | + | + | + |
| Reset | + | + | + | + | + |
| PIR | | + | | | |
| Infrared | + | + | + | | |
| Relay | + | + | | | |
| Dimmable | | + | | | |
| Soft Start | | + | | | |
| Conditions on Events | + | + | + | + | + |
| AC Fail Detect | + | + | + | | |
| Bypass | <u>+</u> | + | | | |
| Repeater | + | + | + | + | + |
| Daily Schedule | + | + | + | + | |
| Weekly Schedule | + | + | + | + | |
| Firmware OTA | + | + | + | + | + |
| Power supply | 230V AC | 230V AC | 230V AC | 7-28V DC | 7-28V DC |
| Max Load | 8A | 8A(relay) 4A(dimmer) | 4A | | |

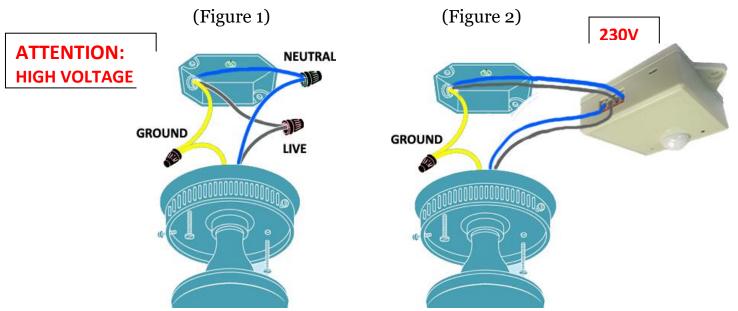
Device pinout & Installation

HOMIDUS Light has two left inputs for mains power 230V coming from the ceiling and two right outputs, that goes to the light fixture.

ATTENTION: Remember to switch off the mains power before installation.

For the installation, we have to put HOMIDUS Light device besides the base of the light fixture. After disconnecting Live and Neutral junctions (as seen at Figure 1.), we have to insert cables to the appropriate positions (as seen at Figure 2.)

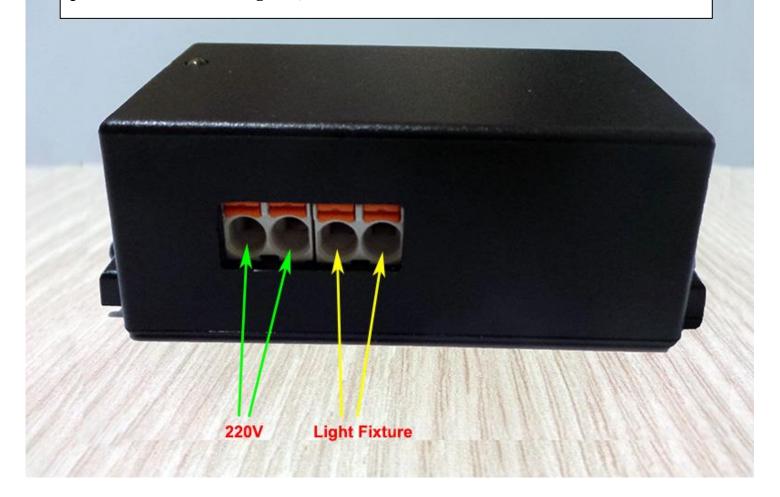


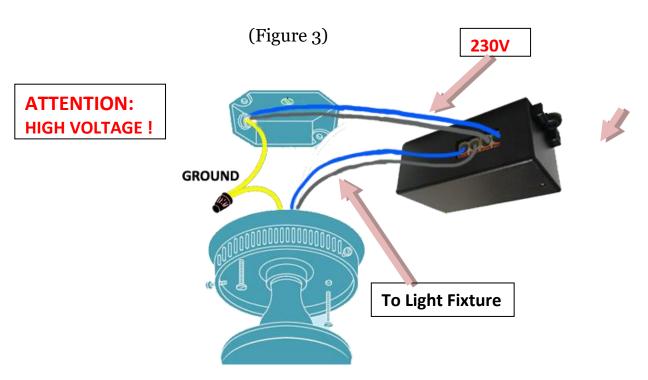


HOMIDUS Mini Light has two left inputs for mains power 230V coming from the ceiling and two right outputs, that goes to the light fixture.

ATTENTION: Remember to switch off the mains power before installation.

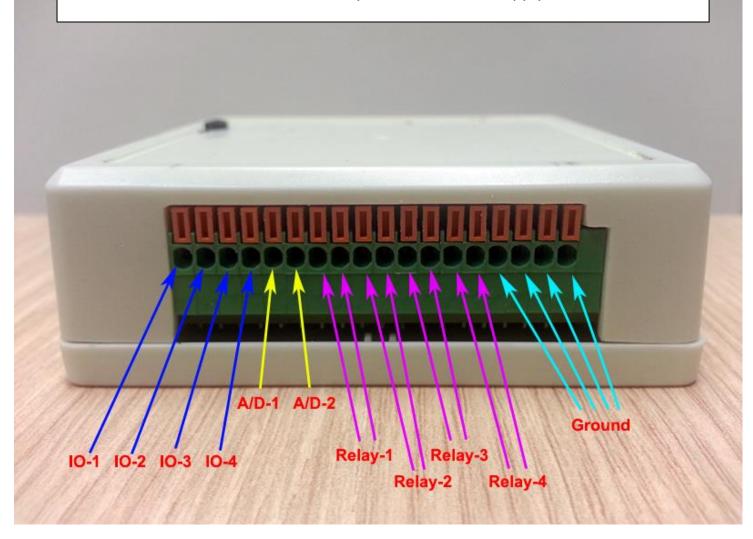
For the installation, we have to put HOMIDUS Mini Light device besides the base of the light fixture. After disconnecting Live and Neutral junctions (as seen at previous page Figure 1.), we have to insert cables to the appropriate positions (as seen at Figure 3.)





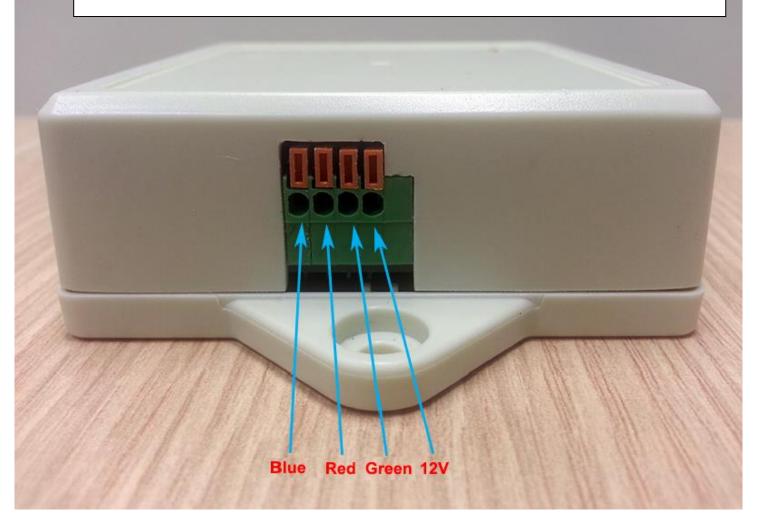
HOMIDUS Data Control has 4 general purpose I/O controls, 2 A/D channels, 4 NO relay , temperature and luminosity control.

HOMIDUS Data Control works with any 7-28V DC Power supply.



HOMIDUS RGB Strip has 3 controls for each color (RGB) and 12V output.

HOMIDUS RGB Strip works with any 7-28V DC Power supply, depending the RGB strip we'll use.



Guarantee

All of our HOMIDUS offer 12 months guarantee and immediate exchange of product in case of failure, except the case, user's intervention is not inside the rules and use described in this manual.

The Company

The company UBILUS is a specialized IT & Electronics company that operates in the fields of Telematics, Communications & Information Management. The company provides specialized, integrated solutions based on software applications and hardware which satisfies a wide range of requirements in the above fields, as well as custom made solutions i.e. solutions that are developed during the process of research and development (R&D) to solve specific requirements. The comparative advantage of the company is the ongoing process of Research & Development with a view to incorporating the latest technology in the products offered. The offered software applications are designed and developed entirely by the specialized Engineers of our company, while the hardware is of latest, state of the art technology designed and manufactured by internationally recognized manufacturers.



ΣΥΣΤΗΜΑΤΑ ΠΛΗΡΟΦΟΡΙΚΗΣ & ΗΛΕΚΤΡΟΝΙΚΩΝ

The WEB sites

http://www.homidus.com/

https://play.google.com/store/apps/details?id=com.amdp.homidus

www.ubilus.com

Contact

Email: info@ubilus.com



HOMIDUS

HOME AUTOMATION SYSTEM OUICK INSTALLATION GUIDE

- 1. Connect HOMIDUS devices with appliances and power them up, according to Hardware Installation guides (**Attention when required power is 230V**). After Power up, LEDs have to be constantly ON.
- 2. Download HOMIDUS from Google Play :

https://play.google.com/store/apps/details?id=com.amdp.homidus

- 3. Open HOMIDUS app, skip introductory screens and select Initial Installation.
- 4. Select Settings icon for the selected Installation. Your home router's SSID is displayed and you have to provide its password. Then press button "ADD DEVICES" and wait until all un-configured devices get configured (see flashing rate of found devices that start blinking at 1 Hz rate).
- 5. Select FLOORPLAN tab from left sidebar and all configured devices will be displayed on floorplan one besides the other. Move each of them to appropriate positions. Selecting any of them starts blinking and can be controlled through the controls from right sidebar.
- 6. Go to DEVICES tab and configure each device through Settings button.
- 7. Welcome to HOMIDUS World!