

Z2RF- Cutting edge Technology in brief

Z2RF TECHNOLOGY BY HOMISMART LTD.

Objective

In the last 3 years the IOT field got into the awareness
Of the world consumers & producers with growing demand for products
That are easily connected and controlled via internet connection.
In this doc we will briefly discuss on HomiSmart z2rf technology
That is designed to allow good reliable performance and coverage for devices over the RF 2.4 GHz frequency.

Goals

As the 2.4 GHz is globally well approved and spread frequency that many home appliances are using there has become a growing need to make good reliable communications that is using this 2.4 GHz frequency to allow the in home or small office users smooth communication over the 2.4 GHz frequency range.

Among the goals of the HomiSmart R&D team were the below objective:

1. Creating reliable communication with as low as possible packet loss information (the info that during its transfer from point a to point b wirelessly will get lost and not reach the destination)
2. Offering safe communication between the connected devices to allow smooth and quick operation.
3. Offering a variety of interchangeable sub frequencies within the range of 2.4 GHz so that if one or few Chanel is busy or too crowded with other devices still the info will reach his destination quickly and safely
4. allowing devices that are far out of the main unit range to use a nearby other device to help communicate with the main unit that from it the commands are transferred to the company servers and from there to the users smartphone to enable control over the smart devices .
5. Allowing cost effective alternative to other spread protocols like ZigBee, zwave...
that are costly ending with higher markup on the products user will need to pay.
6. Allow from one or many devices control other device in the home communication mesh

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With great additional value that is overcoming the obstacle of traditional need that in order to operate a consumer like bulb or other home appliance it has to be hard wired within the walls of the user Home, now with this Z2RF not need to be wired to the other device but using wireless ability of the Z2RF technology we offer this ability to variety of usages.

Solution

HomiSmart Z2RF technology offers a cost effective mesh solution answering all above goals with a simple design and devices connected at the home /office you get all working both with wireless via app and server and also with manually pushing the devices button to control them .

The Z2RF technology has designed to be cost effective solution that using one main control unit being able to manage 60 devices easily covering well usage of any normal apartments and small office users.

The way of the HomiSmart Z2RF technology communication is illustrated below:

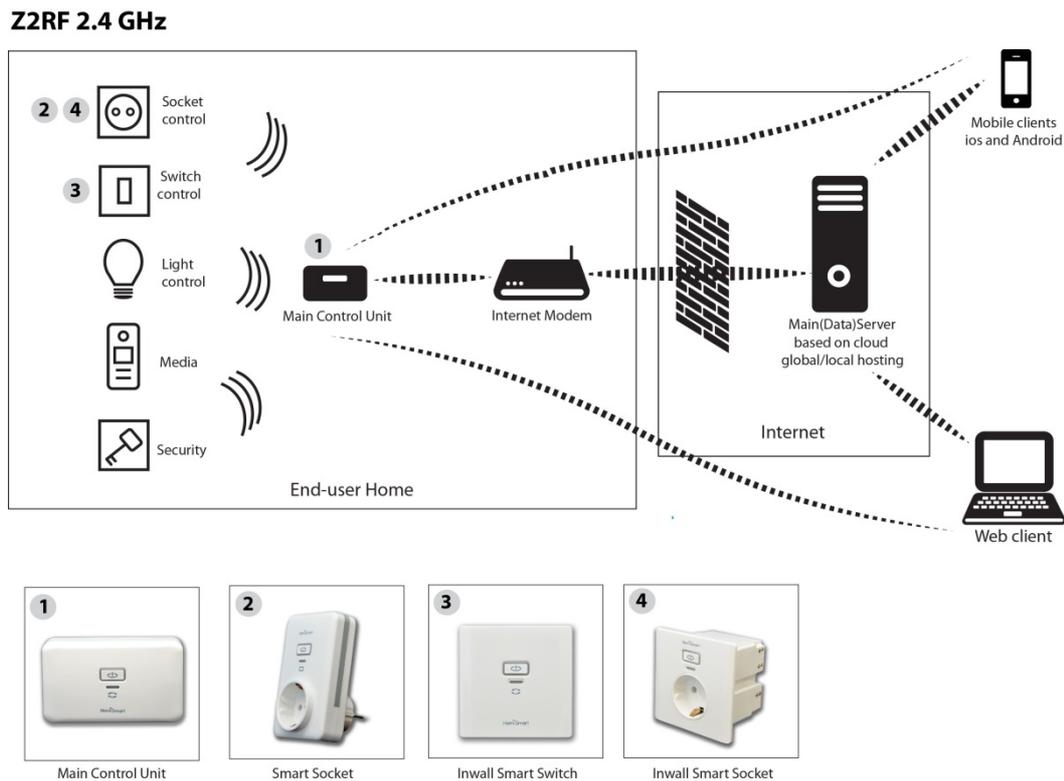


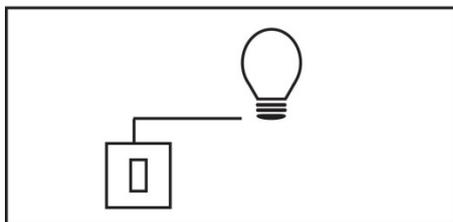
Figure no1: illustrate the communication methods from users all over the world connection via mobile (currently supporting Android and iOS smartphones and web app) to his home smart connected devices.

The HomiSmart Z2RF technology offers significant advantages compared to the traditional way of wiring sockets and switches helping the users to reduce greatly the costs of infrastructure and breaking existing walls to allow wires being connect from point A to B to C and so on ...

In the traditional way -

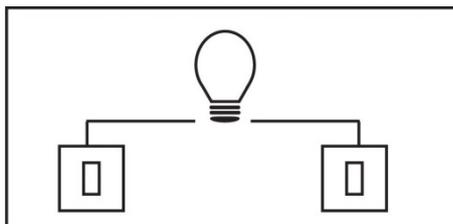
electrician are need to wired with cooper wires with tubes inside the users home walls what requires infrastructure and it less flexible to readymade apartment with customer who does not want to invest in expansive renovate in below

Figure no 2: there is the traditional way as commonly published in home depot USA for the users:



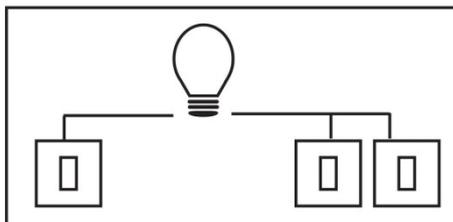
Single-Pole

- Controls one fixture from a single location
- Most common type of switch
- Easiest to install or replace
- Choose from classic toggle or rocker styles



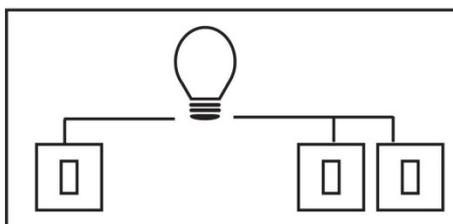
3-Way

- Controls one fixture from two locations
- Often used in stairways, hallways and large room
- Slightly more complicated installation



4-Way

- Controls light(s) from three locations one fixture from two locations
- Most commonly used in large rooms
- One 4-way switch must be used with two 3-way switches in a 4-way circuit
- Slightly more complicated installation



Multi-location

- Controls one fixture from three or more locations
- Used in larger spaces where having multiple controls adds convenience and safety
- Slightly more complicated installation

The HomiSmart Z2RF technology actually enabling above traditional 3-way /4 -way / multi location to be implemented on any single pole connection.

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The HomiSmart Z2RF technology is actually define one pole switch as "master connected device" in single pole connection to be connected by a number of slaves as needed. The all slaves are paired to the master with wireless pairing stages and then the controlling happens wirelessly.

Figure no 3:

The common usages of the HomiSmart Z2RF technology in illustrations:



In above illustration A can be both: socket or switch and can control B, C, D, E, F, G even it is not having hard cooper wire connection between them.

Another possibility is that on E and of the devices A, B, C, D, F, G no matter if it is socket or switch will be able to control by manually pushing the button on the devices.

Any combination that one of the devices A, B, C, D, F, G can control other as well as itself.

Another great feature is that a socket traditionally not connected at all to any light bulb now with HomiSmart Z2RF technology can be used both as socket to be controlled remotely and as switch that operate other socket or switch in the home/small office mesh.

This solution opens up many possibilities like the following example uses:

A. Bedrooms –

user that have a bedside wall socket that usually you connect your bed light lamp for reading and in the entrance to the

bedroom another switch that control your bedroom center light then through this solution we can make any switch or socket next to the bed to turn on/off the light in the bedroom that physically is not wired between them as commonly needed in electricity circuits. The innovation here is in the term that traditional way is that any switch must be wired to bulb and if not wired between them then it will not work.

B. Stairwells -

with our solution we can make a number of switches 3-6 to control the same lamp while only one switch is hard wired to the bulb all other will control this switch that eventually operate the bulb .

C. places with problematic reception –

Here we allow devices to extend the range of control that was the limit of coverage of the user home Wi-Fi - the following explanation- The central unit of our limited range then what we can do is to place the socket or switch the extra out of coverage so that we cannot control application, but pressing the button on the socket or switch the remote can make this accessory to chat with the socket far that we assume at the maximum absorption The central unit thus allowing him to control the problematic issue (in this case it is used as a remote control but not controlled app that out of range of the central unit in this example)

D. Control bedroom bedside lighting in the hallway-

again that the idea of a single switch controls the execution of other match...

E. house control the unwired lighting in the garden or vice versa (assuming our central unit does not cover this area)