

HOME Assistant

A “no mothership” Option for home automation

Bruce Semple
WA3SWJ@ARRL.NET

A Sense & Respond System

– OR –

Complex Event Processing

– OR –

HOME Automation

– OR –

HOME Assistant

Presentation Talking Points

- Why is this topic of interest ?
- Home Assistant – No Cloud Required - Architecture
 - Integrations with Existing Commercial products
 - Functional Expandability – Add-Ons
 - The Automation Engine – (the magic)
- The HA Dashboard
- Four Integration Examples
- IoT – Sensors & Controls for your home
 - Interconnection
 - Sensors you can build
- Installing & Running Home Assistant
- Demo

Why Is this of Interest ...

Besides Home Automation ... Home Assistant can
help to monitor and manage ..

- remote systems
 - un-attended repeater sites
 - remote stations (Camp Greenough site)
 - un-attended vacation homes (during the winter)
- systems located in your home that you don't routinely interact with
 - leak developing from hot water heater, washing machine
 - pipe freeze warnings

Sense & Respond

Sense

- temperature / humidity
- water present (leaks)
- motion
 - PIR sensors
 - Video surveillance
- presence detection
 - iPhone shows up on home WIFI
- air quality
 - gas stoves
- door / window position
- Current Flow
 - appliances on / off
 - energy management
- Rain
- Time of Day / Day of Week
- Sunset / Sunrise
- User Request
 - button press
 - Phone App Interaction

RESPOND

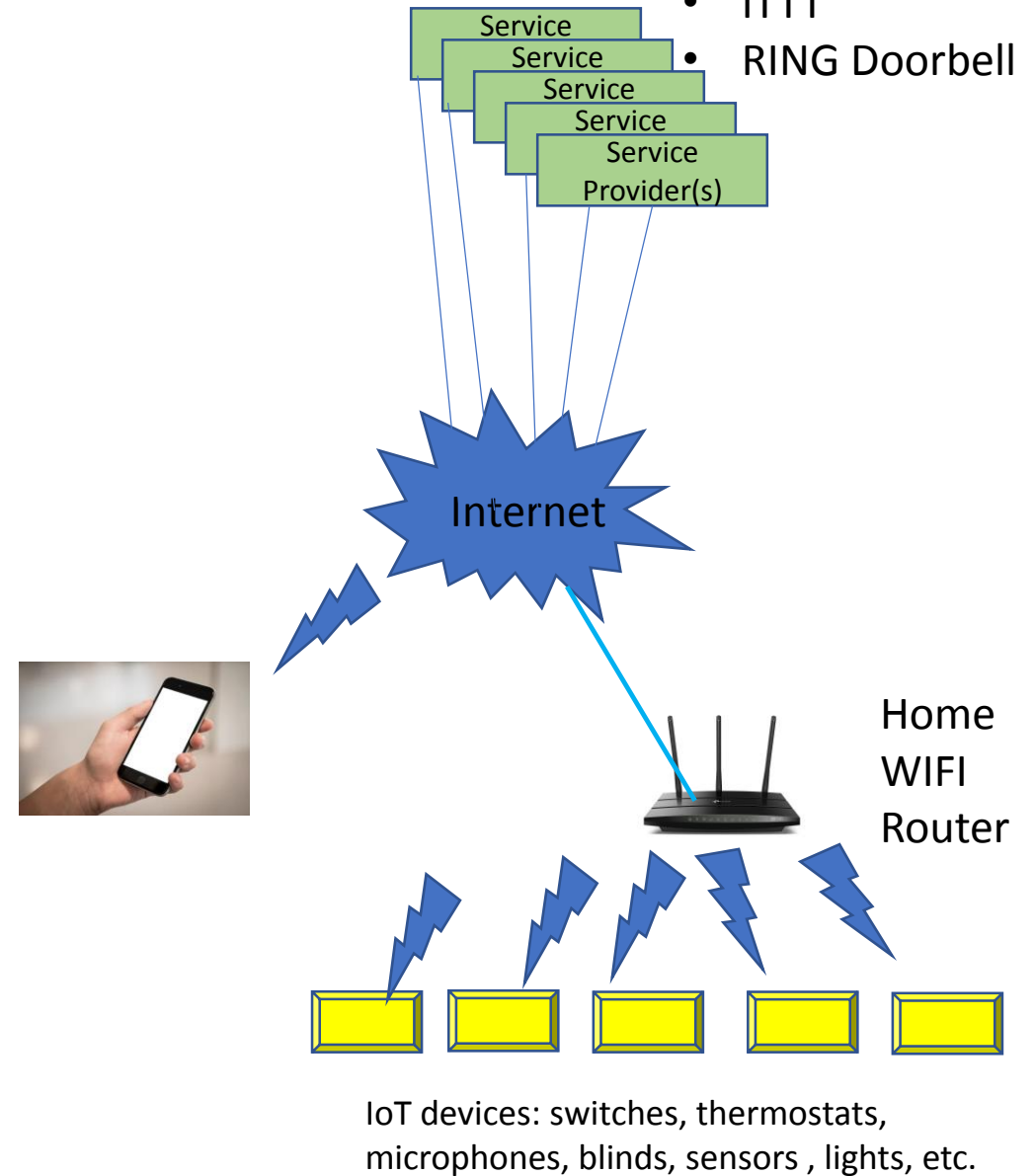
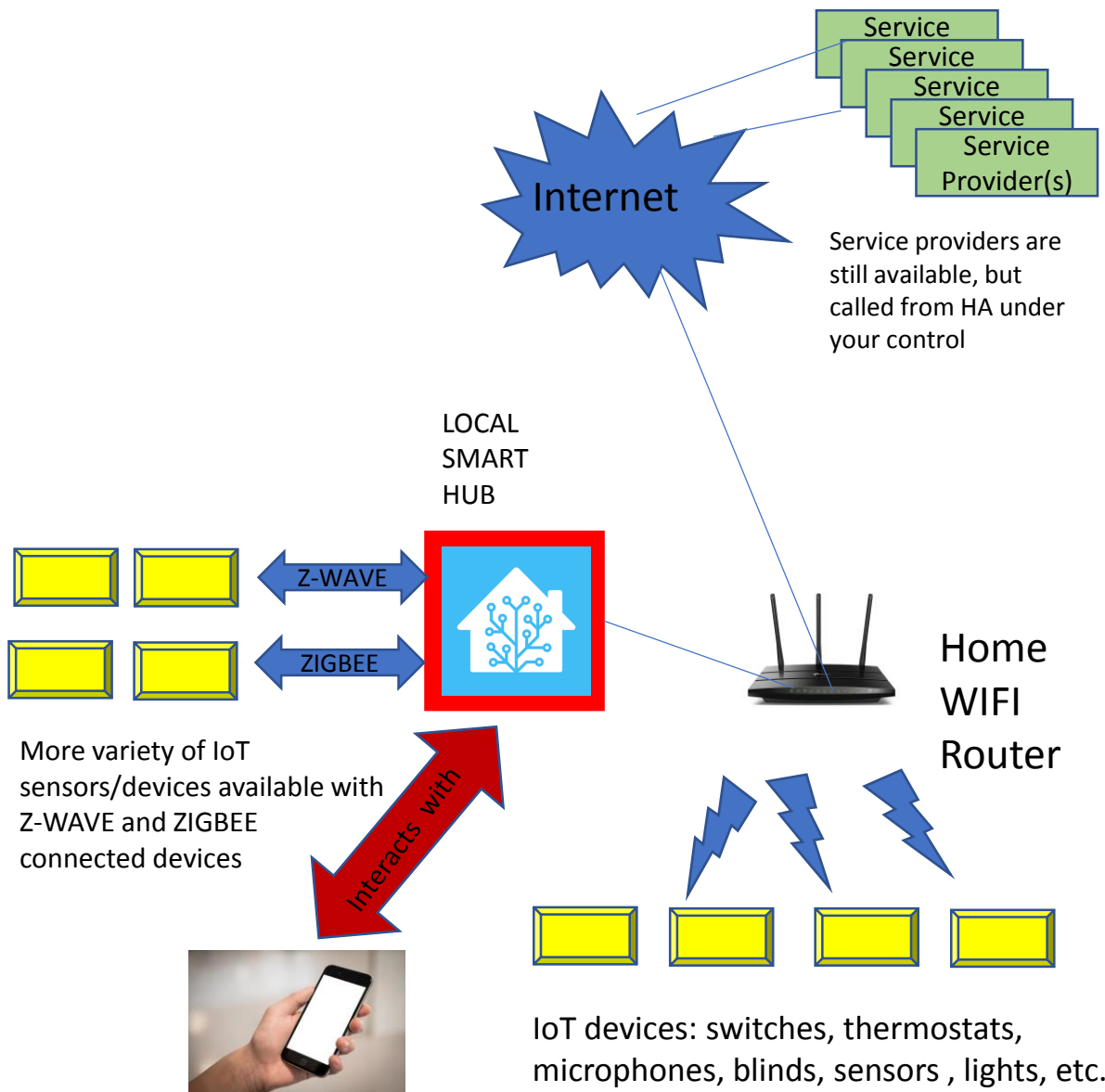
- turn on/off devices
 - lamps
 - air dampers
 - water valves
 - fans
 - relays
 - pumps
- trigger other automations
- Notify interested parties
 - sound an alarm
 - send a text message / email
- configure custom lighting scenes
- lock / unlock doors

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Two Architecture Approaches

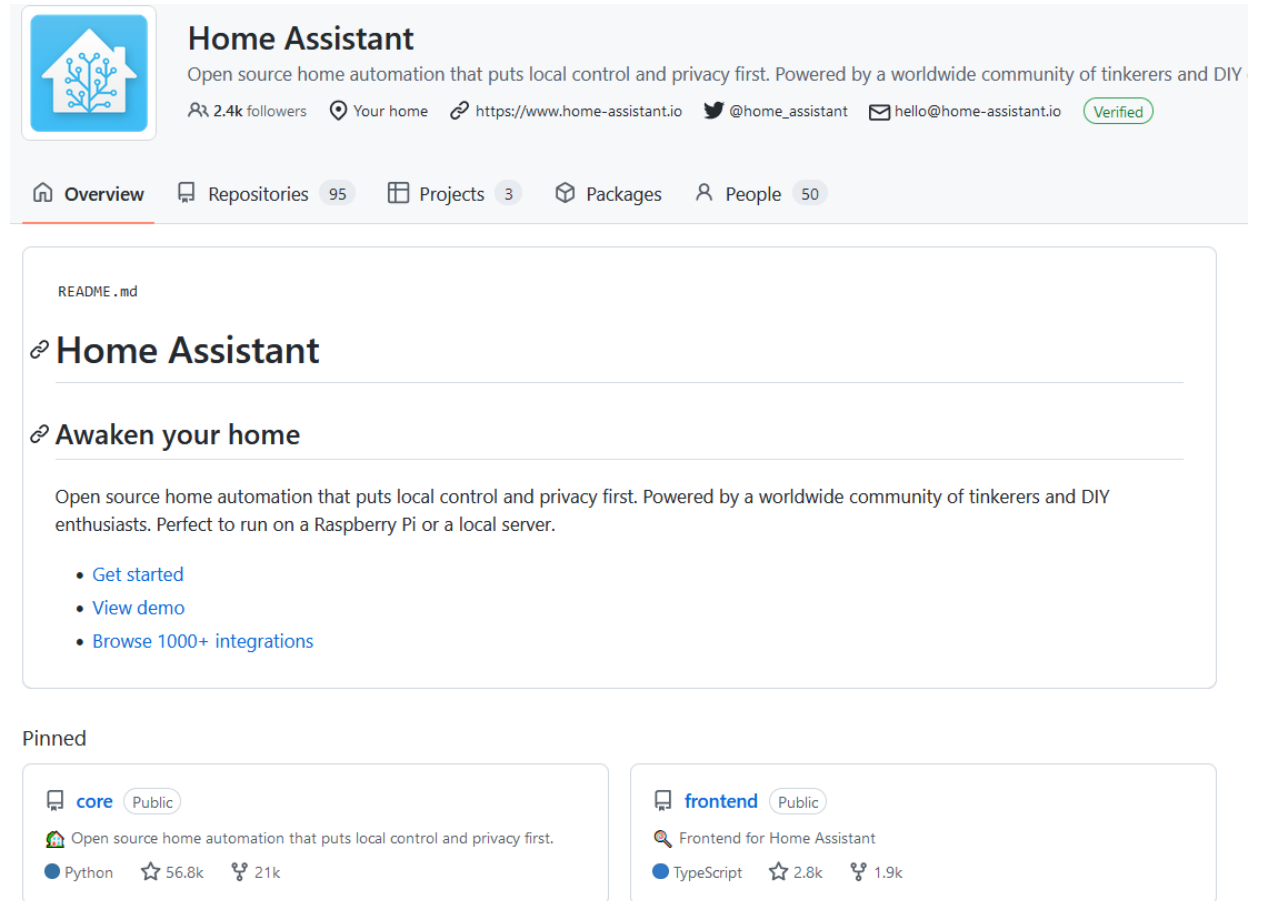
- NEST/GOOGLE
- AMAZON
- ITTT
- RING Doorbell



Home Assistant

<https://github.com/home-assistant>

- Open Source project ..
- Currently 2nd largest Open source project on GitHub
- 13.5K Contributors
- International Project



The screenshot shows the GitHub profile for Home Assistant. At the top, there is a profile card with the Home Assistant logo (a house with a tree inside) and the name "Home Assistant". Below the name is a bio: "Open source home automation that puts local control and privacy first. Powered by a worldwide community of tinkerers and DIY enthusiasts." It also shows "2.4k followers", "Your home" location, the website "https://www.home-assistant.io", the Twitter handle "@home_assistant", the email "hello@home-assistant.io", and a "Verified" badge. Below the profile card are navigation tabs: "Overview" (selected), "Repositories 95", "Projects 3", "Packages", and "People 50".

The main content area shows a "README .md" file. The title is "Home Assistant" with a link icon. Below the title is the subtitle "Awaken your home". The bio is repeated: "Open source home automation that puts local control and privacy first. Powered by a worldwide community of tinkerers and DIY enthusiasts. Perfect to run on a Raspberry Pi or a local server." There are three links: "Get started", "View demo", and "Browse 1000+ integrations".

Below the main content is a "Pinned" section with two repository cards. The first card is for the "core" repository, which is "Public". It has a bio: "Open source home automation that puts local control and privacy first." and shows "Python" as the language, "56.8k" stars, and "21k" forks. The second card is for the "frontend" repository, which is also "Public". It has a bio: "Frontend for Home Assistant" and shows "TypeScript" as the language, "2.8k" stars, and "1.9k" forks.

Home Assistant Features

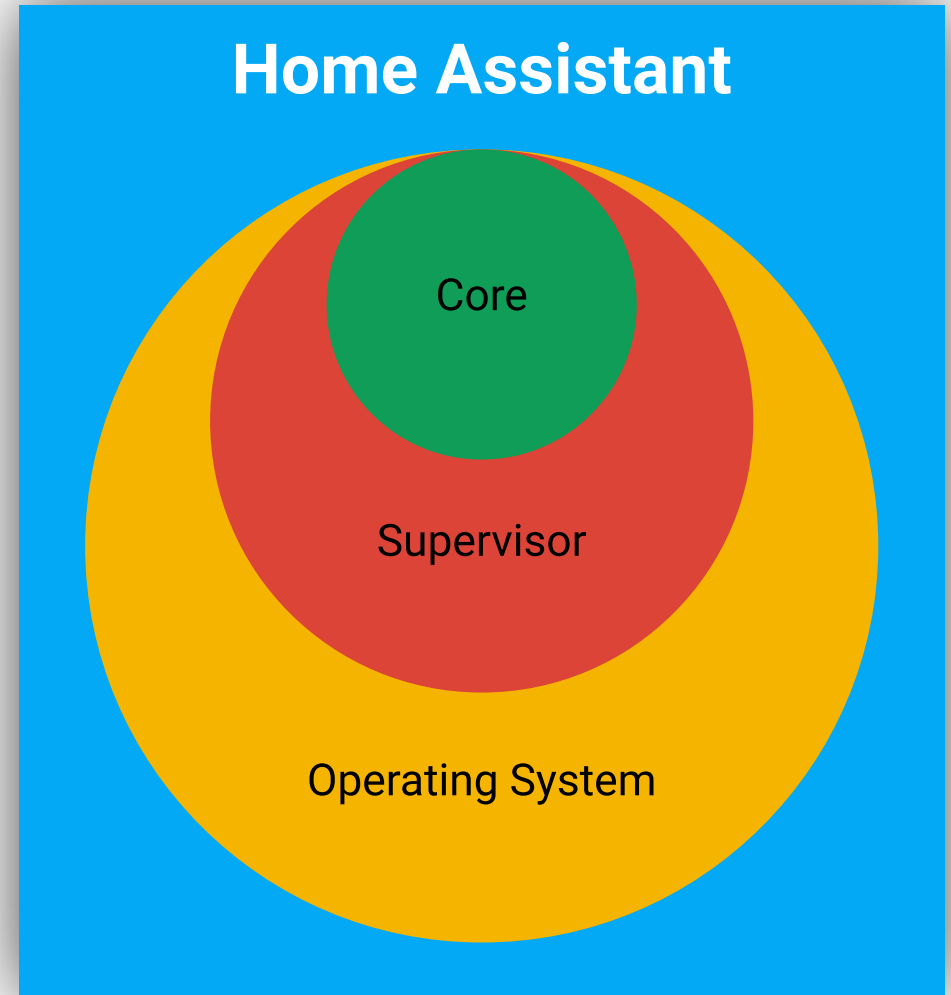
(<https://www.home-assistant.io/>)

- Home Assistant integrates with over two thousand different devices and services.
- **ADD-Ons:** Home Assistant is not just limited to Home Assistant. Easily install other applications that will help you manage your home. For Example:
 - Run AdGuard, a DNS-based ad blocker
 - Run third party automation engines like NodeRed
 - Turn Home Assistant into a Spotify Connect target
- **Companion Mobile APP**
- **Voice Interface**
 - 2023 year of Voice Control for HA
- **Powerful Automations:** Once you have integrated all your devices at home, you can unleash Home Assistant's advanced automation engine to make your home work for you.
 - Turn on the light when the sun sets or when coming home
 - Alert you when you leave your garage door open.
 - Lock all your doors automatically at 11:30pm
- **LOCAL DATA & Control:** All your smart home data stays local Home Assistant communicates with your devices locally, and will fallback to pulling in data from the cloud if there is no other option. No data is stored in the cloud, and everything is processed locally.
- **Home Energy Management:** Home Assistant allows you to get on top of your energy use with its home energy management feature. Gain new insights, optimize your solar panel production, plan energy usage and save money.

Home Assistant Architecture

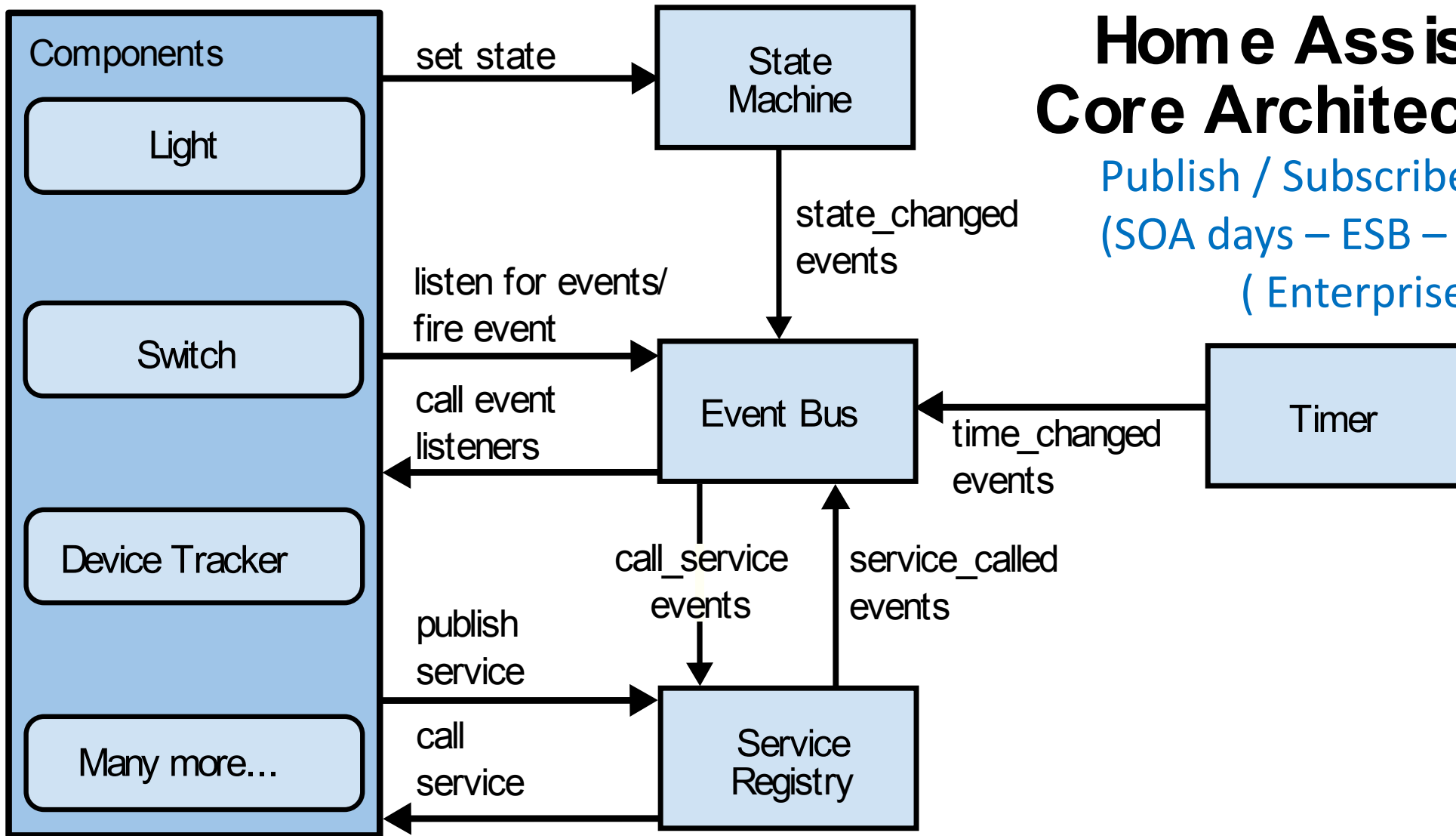
Home Assistant provides a platform for home control and home automation. Home Assistant is not just an application: it's an embedded system that provides an experience like other consumer off-the-shelf products: onboarding, configuration and updating is all done via an easy to use interface.

- The [operating system](#) provides the bare minimal Linux environment to run Supervisor and Core.
- The [Supervisor](#) manages the operating system.
- The [Core](#) interacts with the user, the supervisor and IoT devices & services.



Home Assistant Core Architecture

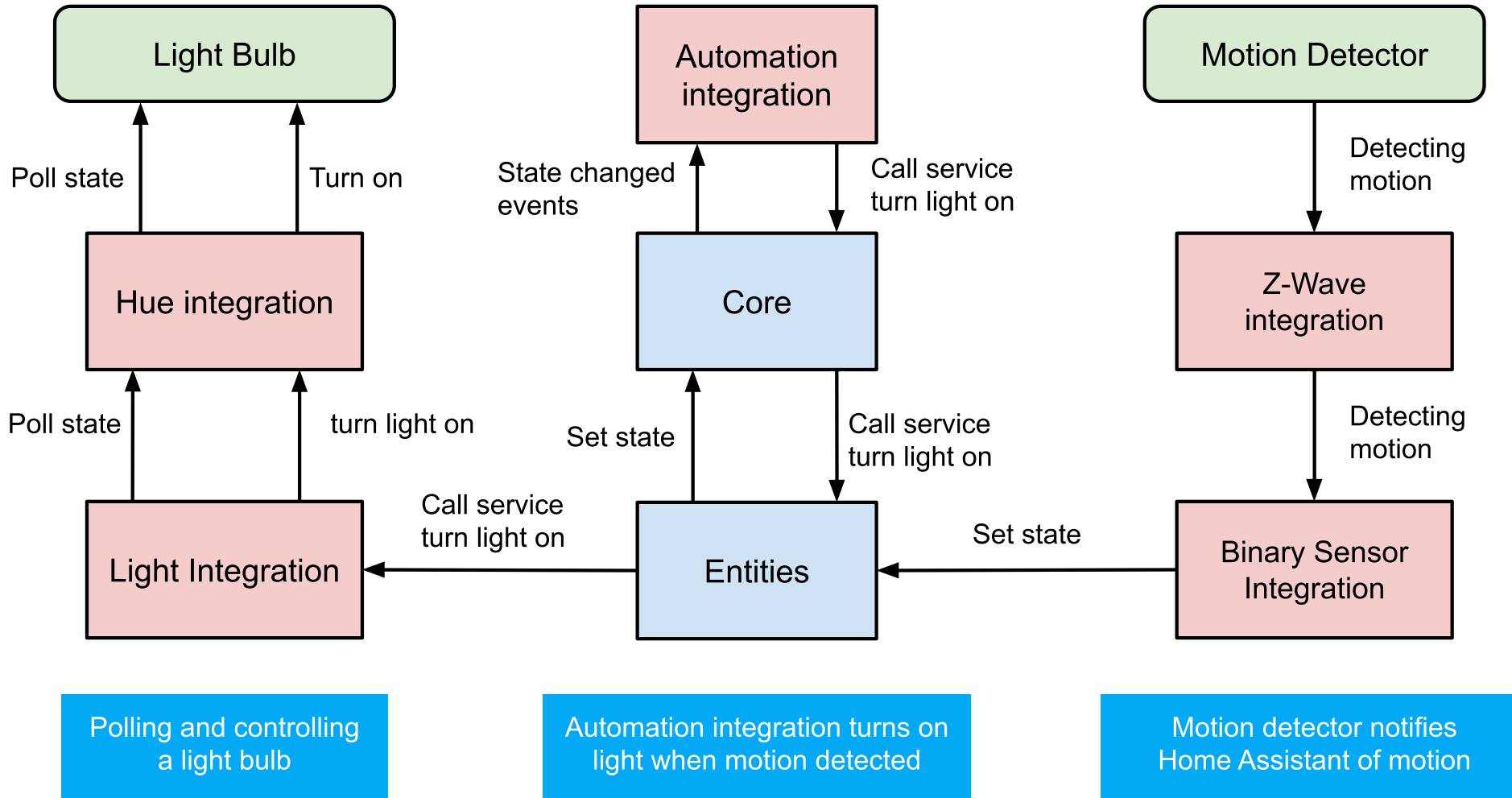
Publish / Subscribe to an Event Bus
(SOA days – ESB –
(Enterprise Service Bus)



- State Machine:** keeps track of the states of things and fires a `state_changed` event when a state has been changed.
- Service Registry:** listens on the event bus for `call_service` events and allows other code to register services.
- Timer:** sends a `time_changed` event every 1 second on the event bus.
- Event Bus:** facilitates the firing and listening of events -- the beating heart of Home Assistant

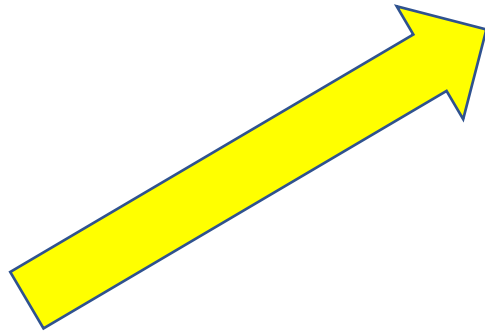
Core Integrations

Start on this box



Home Assistant Core can be extended with **integrations**. Each integration is responsible for a specific domain within Home Assistant. Integrations can listen for or trigger events, offer services, and maintain states. Integrations are made up of a component (the base logic) and platforms (bits that integrate with other integrations).

Integrations



Currently over 2,371
Integrations with
various commercial
components

Home Assistant

Getting started Documentation Integrations Examples Blog Need help?

Support for these integrations is provided by the Home Assistant community.

All (2371)

Featured

Added in:

3D Printing (2)

Alarm (36)

Alarm Control Panel (12)

Automation (26)

Binary Sensor (190)

Button (46)

Calendar (10)

Camera (47)

Car (16)

Climate (108)

Cover (97)

DIY (21)

Device Automation (1)

Device Tracker (1)

































Doorbell (7)

Search integrations...

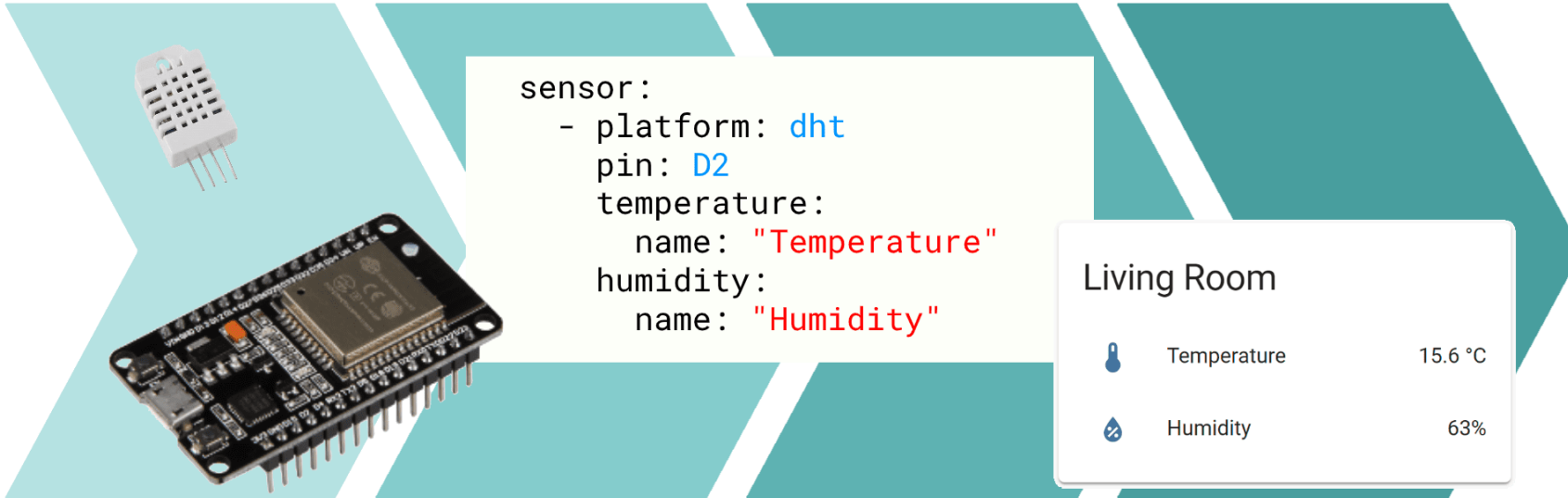
1-Wire Long distance sensors and devices	17TRACK	3 Day Blinds YOU'LL LOVE THE TREATMENT	Abode
AccuWeather	Acer Projector	Actiontec	Adax
AdGuard Home	ADS	Advantage Air	AEMET OpenData
AfterShip	Agent DVR	Air Quality	air-Q
AirNow	AIRTHINGS	AIRTHINGS	AIRTHINGS

<https://www.home-assistant.io/integrations/>

Large Library of “ADD-ON”s – additional functionality -- that can be added as needed.

 AdGuard Home Network-wide ads & trackers blocking DNS server	 AirCast AirPlay capabilities for your Chromecast devices.	 AirSonos AirPlay capabilities for your Sonos (and UPnP) devices.	 AppDaemon Python Apps and Dashboard using AppDaemon 4.x for Home Assistant
 Bookstack Simple & Free Wiki Software	 chrony A local NTP (Network Time Protocol) server for cameras etc.	 EMQX The most scalable open-source MQTT broker for IoT. An alternative for the	 Example Example add-on by Community Home Assistant Add-ons
 Folding@home Fighting disease with a world wide distributed super computer	 FTP A secure and fast FTP server for Home Assistant	 Glances A cross-platform system monitoring tool	 Grafana The open platform for beautiful analytics and monitoring
 Grocy ERP beyond your fridge! A groceries & household management solution for your	 Home Panel A web frontend for controlling the home	 InfluxDB Scalable datastore for metrics, events, and real-time analytics	 JupyterLab Create documents containing live code, equations, visualizations, and explanatory
 Log Viewer Browser-based log utility for Home Assistant	 Matrix A secure and decentralized communication platform.	 motionEye Simple, elegant and feature-rich CCTV/NVR for your cameras	 MQTT IO Expose GPIO modules and digital sensors via MQTT for remote control and
 Network UPS Tools Manage battery backup (UPS) devices	 Nginx Proxy Manager Manage Nginx proxy hosts with a simple, powerful interface	 Node-RED Flow-based programming for the Internet of Things	 phpMyAdmin A web interface for the official MariaDB add-on
 Plex Media Server Recorded media, live TV, online news, and podcasts ready to stream.	 Spotify Connect Play Spotify music on your Home Assistant device	 SQLite Web Explore your SQLite database	 SSH & Web Terminal SSH & Web Terminal access to your Home Assistant instance
 Studio Code Server Fully featured Visual Studio Code (VSCode) experience integrated in the Home	 Tailscale Zero config VPN for building secure networks	 TasmAdmin Centrally manage all your Sonoff-Tasmota devices	 Tautulli Monitoring and tracking tool for Plex Media Server

Favorite ADD ON #1: ESPHOME – DIY Sensors



```
sensor:  
- platform: dht  
  pin: D2  
  temperature:  
    name: "Temperature"  
  humidity:  
    name: "Humidity"
```

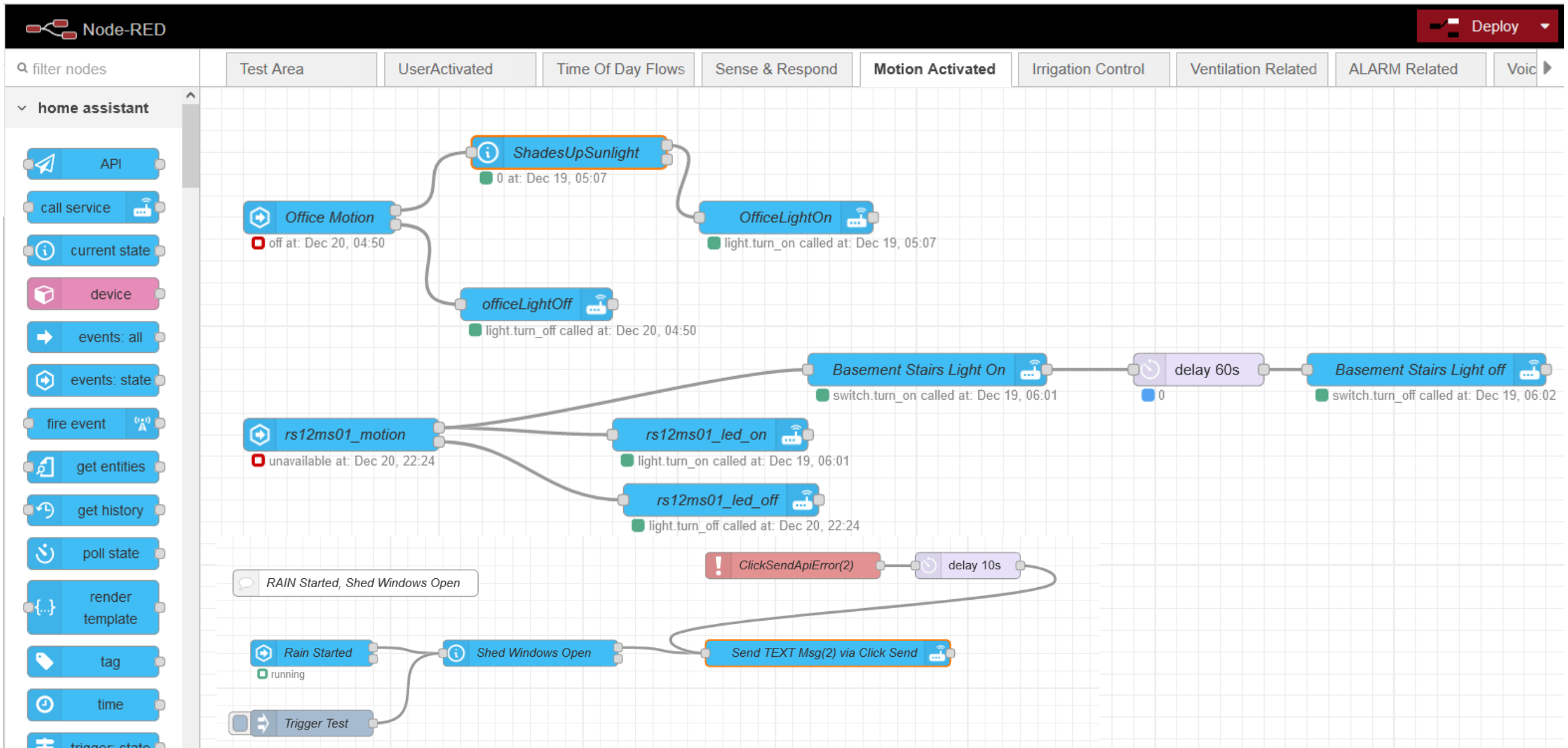
```
Living Room  
🌡 Temperature 15.6 °C  
💧 Humidity 63%
```

```
# tell esphome which board you are using  
esphome:  
  name: rs12ms01  
  platform: ESP8266  
  board: nodemcu2  
# provide wifi connection inf  
wifi:  
  ssid: "xxxxxxxxxxxxxxxxxxxxx"  
  password: "xxxxxxxxxxxxxxxxx"  
# Enable logging  
logger:  
# Enable Home Assistant API  
api:  
# enable "over the air updates"  
ota:  
# Setup Reboot Remotely switch entity  
switch:  
- platform: restart  
  name: "rs12ms01_restart"  
# Now define the sensor  
sensor:  
- platform: dht  
  model: am2302  
  pin: D1  
  temperature:  
    name: "Living Room Temperature"  
  humidity:  
    name: "Living Room Humidity"  
  update_interval: 60s  
#
```

Automations bring your home “alive”

- Exterior lighting Control based on sunset / sunrise
- Holiday lightening Control
- Irrigation Control that takes into account weekly rainfall
- Open inlet air damper when Dryer is running
- Alert you to water flow and no-one is home
- Activate a “lighting scene” when your phone shows up on your home wifi after you have been away ... and it’s after sundown
- Close blinds automatically at sundown
- Smart Home Security
- Activate Energy Recovery Ventilators when CO2 levels get above a threshold (air in house is getting “stuffy”)
- Lock all doors at 11:30pm
- Close the big garage door at 1:00am if it’s still open
- Alert you via a text msg to your phone if windows are open and it’s starting to rain
- Notify the church personnel if the air pump for the sprinkler system starts running too often .. Indicating a leak in the sprinkler piping
- Ham Radio Related
 - Remote station control
 - Hardware configuration control

Favorite Add On #2: Node Red – Automation Engine

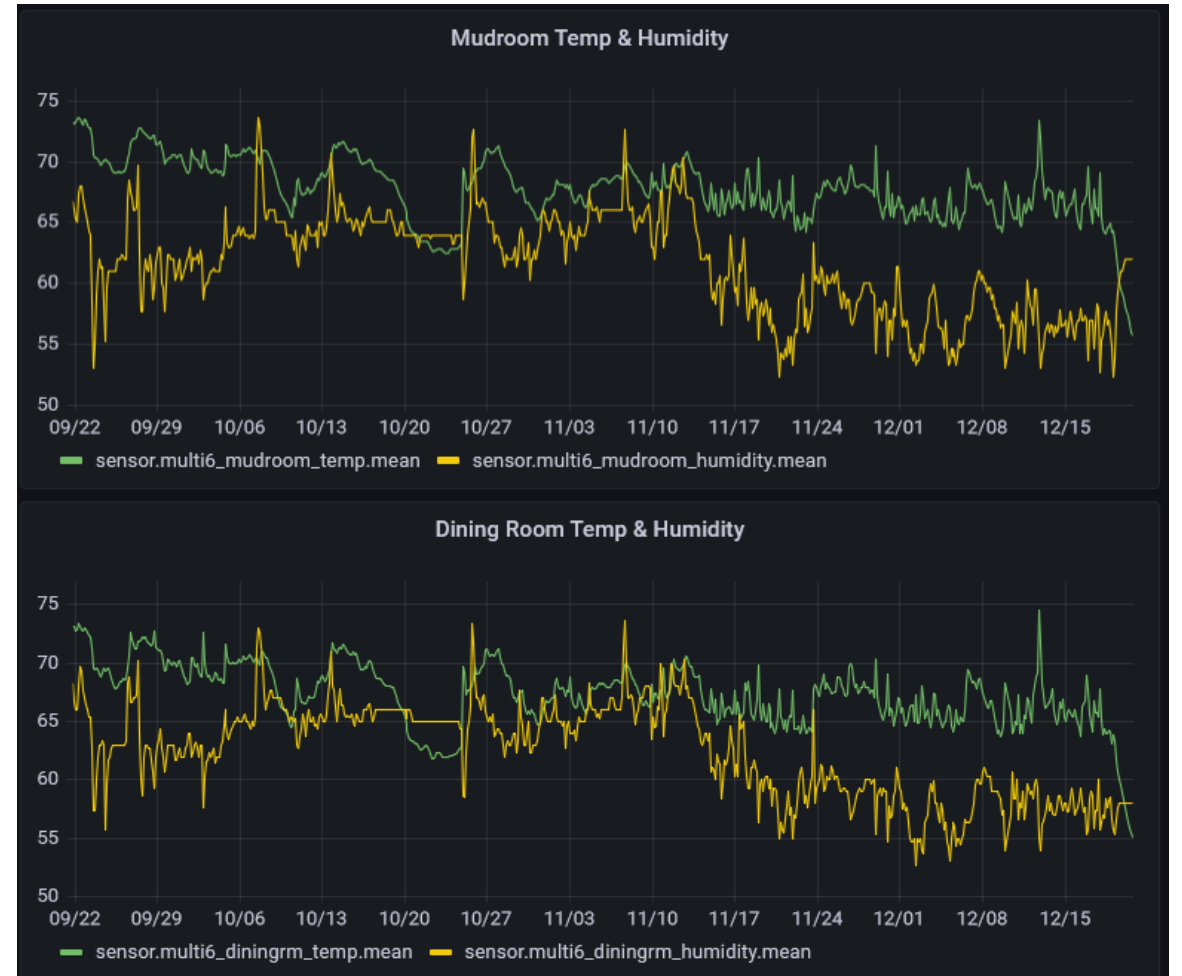
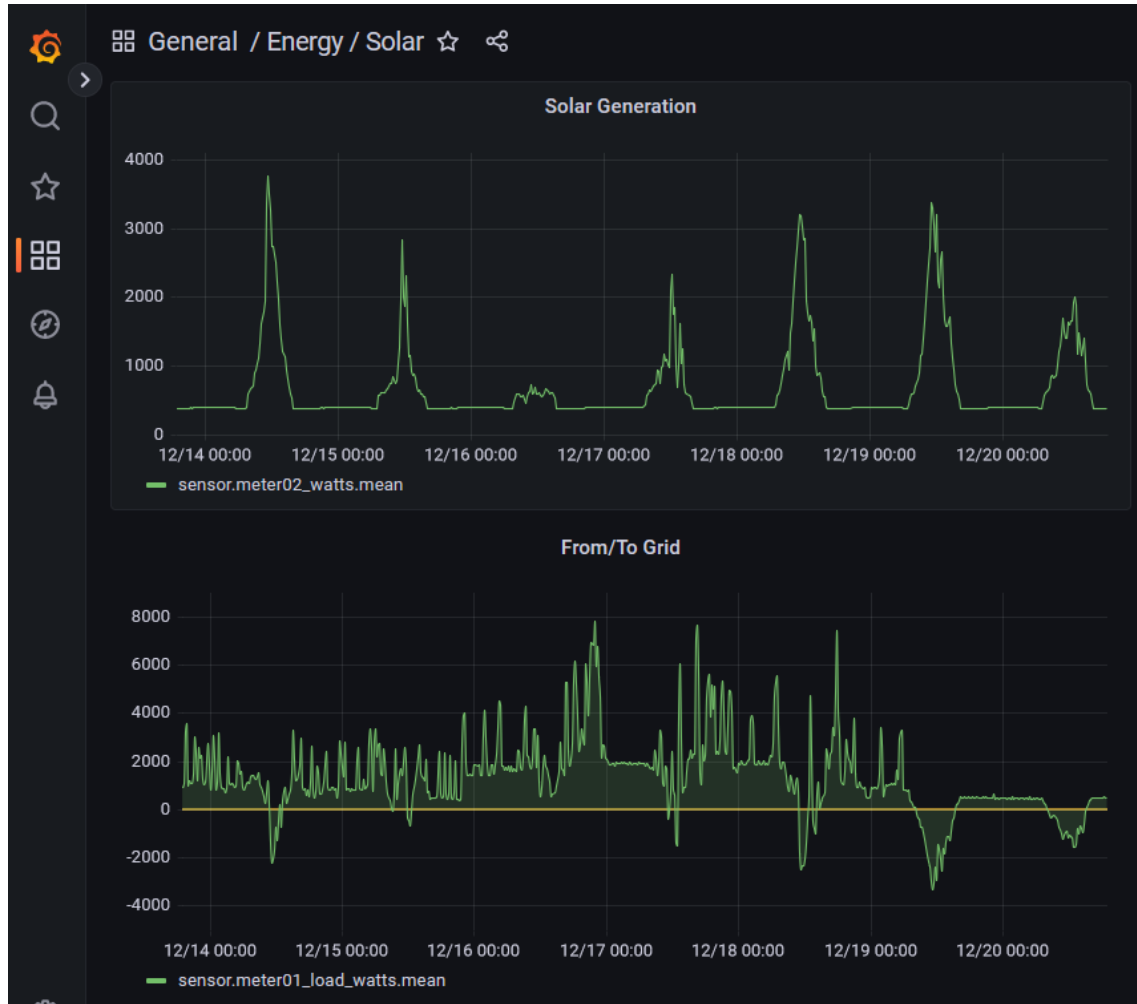


NodeRed Node Types

The image displays the Node-RED node palette, organized into several categories:

- common**
 - inject
 - debug
 - complete
 - catch
 - status
 - link in
 - link call
 - link out
 - comment
 - InjectUltimate
- sequence**
 - split
 - join
 - sort
 - batch
- parser**
 - csv
 - html
 - json
 - xml
 - yaml
 - base64
- storage**
 - write file
 - read file
 - watch
 - influxdb in
 - influxdb out
 - influx batch
- input**
 - sun events
- function**
 - function
 - switch
 - change
 - range
 - template
 - delay
 - trigger
 - exec
 - filter
 - Cast
 - counter
 - interval - length
 - state - machine
 - time range
 - random
 - smooth
- network**
 - mqtt in
 - mqtt out
 - http in
 - http response
 - http request
 - websocket in
 - websocket out
 - tcp in
 - tcp out
 - tcp request
 - udp in
 - udp out
 - serial in
 - serial out
 - serial request
 - ping
- modbus**
 - Modbus - Response
 - Modbus - Read
 - Modbus - Getter
 - Modbus - Flex - Getter
 - Modbus - Write
 - Modbus - Flex - Write
 - Modbus - Server
 - Modbus - Flex - Server
 - Modbus - Queue - Info
 - Modbus - Flex - Connector
 - Modbus - Response - Filter
 - Modbus -
- social**
 - email MTA
 - email
 - twitter in
 - email
 - twitter out
- advanced**
 - bigtimer
 - feedparser
- boolean logic**
 - Boolean logic
 - Invert
 - Debug

Favorite Add On #3: Grafana – Historical Graphing Of Data



Favorite ADD ON #4 (most recent): RHASSPY

<https://www.home-assistant.io/integrations/rhasspy/>

This is “Alexa” or “Google”
without big brother
listening in!

Rhasspy Voice Assistant



Rhasspy (*ˈjæspi*) is an [open source](#), fully offline set of [voice assistant services](#) for [many human languages](#) that works well with:

- [Hermes protocol](#) compatible services ([Snips.AI](#))
- [Home Assistant](#) and [Hass.io](#)
- [Node-RED](#)
- [Jeedom](#)
- [OpenHAB](#)

You specify voice commands in a [template language](#):

```
[LightState]
states = (on | off)
turn (<states>){state} [the] light
```

and Rhasspy will produce [JSON](#) events that can trigger action in home automation software, such as a [Node-RED](#) flow:

Home Assistant User Interface / Dashboards

<https://www.home-assistant.io/dashboards/>

Home Assistant dashboards are a fast, customizable and powerful way for users to manage their home using their mobiles and desktops.

- 29 different cards to place and configure as you like.
- Dashboard Editor: Allows you to manage your dashboard by including a live preview when editing cards.
- Fast: Using a static configuration allows us to build up the dashboard once.
- Customizable:
 - Cards have a number of options which help to configure your data as required.
 - Themes (even at a per card basis).
 - Ability to override names and icons of entities.
 - Custom Cards from our amazing community are fully supported.
 - Extensive library of icons
- Based on Dwains “lovelace” dashboard technology
 - <https://dwainscheeren.github.io/dwains-lovelace-dashboard/>

You Customize / Build Dashboard from a set of building blocks

The screenshot displays a Home Assistant dashboard with a blue header and a sidebar on the left. The main content area is divided into several sections:

- Home Assistant Header:** Includes a menu icon, the text "Home Assistant", a search icon, and a settings icon.
- ARS Home Card:** Features a "NEXT DEMO" button, a welcome message, and a "LEARN MORE ABOUT HOME ASSISTANT" link.
- Lights Card:** Lists "Kitchen Lights", "Living Room Lights", "Porch Lights", and "Garage Lights" with corresponding toggle switches.
- Temperature Study Card:** Shows a "20.9 °C" reading and a line graph.
- Energy distribution today Card:** A diagram showing energy flow from "Low-carbon" (3.4 kWh), "Solar" (8.6 kWh), and "Gas" (2.2 m³) to the "Grid" (2.1 kWh out, 5.4 kWh in) and "Home" (11.9 kWh). Includes a "GO TO THE ENERGY DASHBOARD" link.
- Temperature Card:** Displays "22 °C" with a range of "20.0 - 24.0" and "Auto - Away" mode. Includes a "Upstairs" control.
- Doorbell Card:** Shows "Front Door Ding" and a "Clear" button.
- Information Card:** Lists "Morning Commute" (37 min), "Commute to Home" (41 min), "PlexSpy" (0 Watching), and "USDINR" (71.25 INR).
- Security Card:** Shows a "Disarmed" status and "ARM HOME" / "ARM AWAY" buttons.
- Entertainment Card:** Displays a "Family Room" card for "I Wasn't Born To Follow" by The Byrds, featuring a "easy rider:" movie poster.

Dashboard Examples From <https://demo.home-assistant.io/#/lovelace/0>

The dashboard features a green header with navigation icons (home, light, menu) and a search icon. The main content is organized into several sections:

- Introductory Card:** "Isa's mobile friendly LL by Isabella Gross Alstrom" with a "NEXT DEMO" button and a link to "LEARN MORE ABOUT HOME ASSISTANT".
- Temperature Widgets:** Four cards for "Bedroom" (22.7 °C), "S's room" (26.2 °C), "Passage" (23.7 °C), and "Laundry" (23.1 °C), each with a line graph showing temperature fluctuations.
- Lighting Controls:** A grid of light switches for "Outdoor lights", "Kitchen Lights", "Floorlamp", "Hallway wind...", "Isa Ceiling Lig...", "Living Room L...", "Passage Lights", and "Upstairs Hall...".
- Moisture Monitoring:** Three circular gauges for "Small chili moisture" (34%), "Big chili moisture" (36%), and "Herbs moisture" (39%), with a background image of a plant.
- Task List:** A list with an "Add item" input, "Milk", "Eggs", and "Oranges" (checked). A "Checked items" section is also visible.
- Weather:** A "Temperature" chart showing a 6-day forecast with elevation on the y-axis (2500-6000m) and time on the x-axis.
- Home Status:** A grid of icons for "Home", "Disarmed", "Vacuumi...", "Empty", "Put out", "Running", "Idle", "Off", and "Off".
- Litterbox Visits:** Two gauge charts showing "Downstairs Litterbox Visits" (3) and "Upstairs Litterbox Visits" (1).

More Dashboard Examples

Hem NEXT DEMO
by Kemeheed

Welcome home! You've reached the Home Assistant demo where we showcase the best UIs created by our community.

[LEARN MORE ABOUT HOME ASSISTANT](#)

Lock

- Frontdoor LOCK
- Battery 63%
- Our Manison Disarmed
- Doorbell Open

Entrance camera

Sensors: Laundry sensor, Pantry sensor, Basement se..., Stair sensor, Bench sensor, Porch sensor, Bathroom sen...

Occupancy: Oskar (Eve's room)

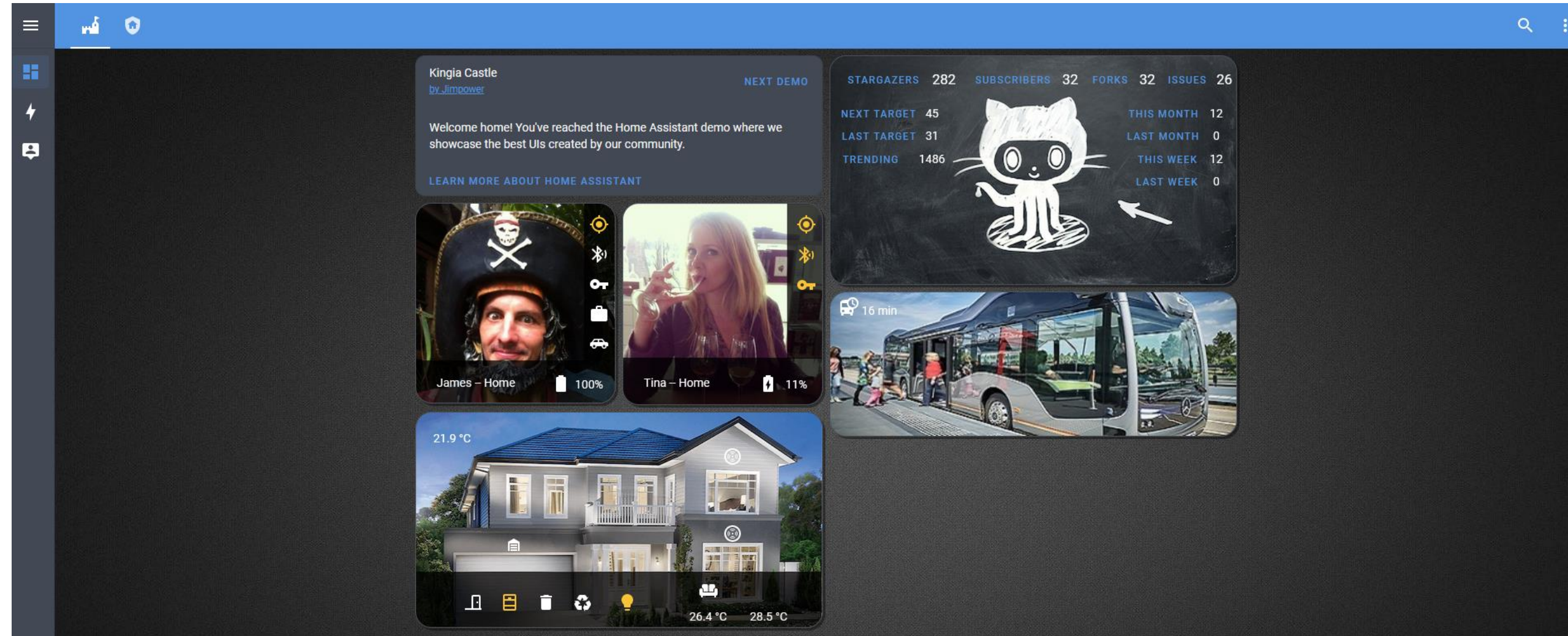
Pattern: Choose pattern: Rainbow

Palette: Choose palette: Party

Weather: Sunny, -5 °C, 0 mm

Day	Sat	Sun	Mon	Tue	Wed
Temp	-2°	-7°	-12°	-5°	-5°
Low Temp	-7°	-12°	-16°	-17°	-7°

More Examples from demo site



4. YTD Dashboard

Select YTD Month JUN

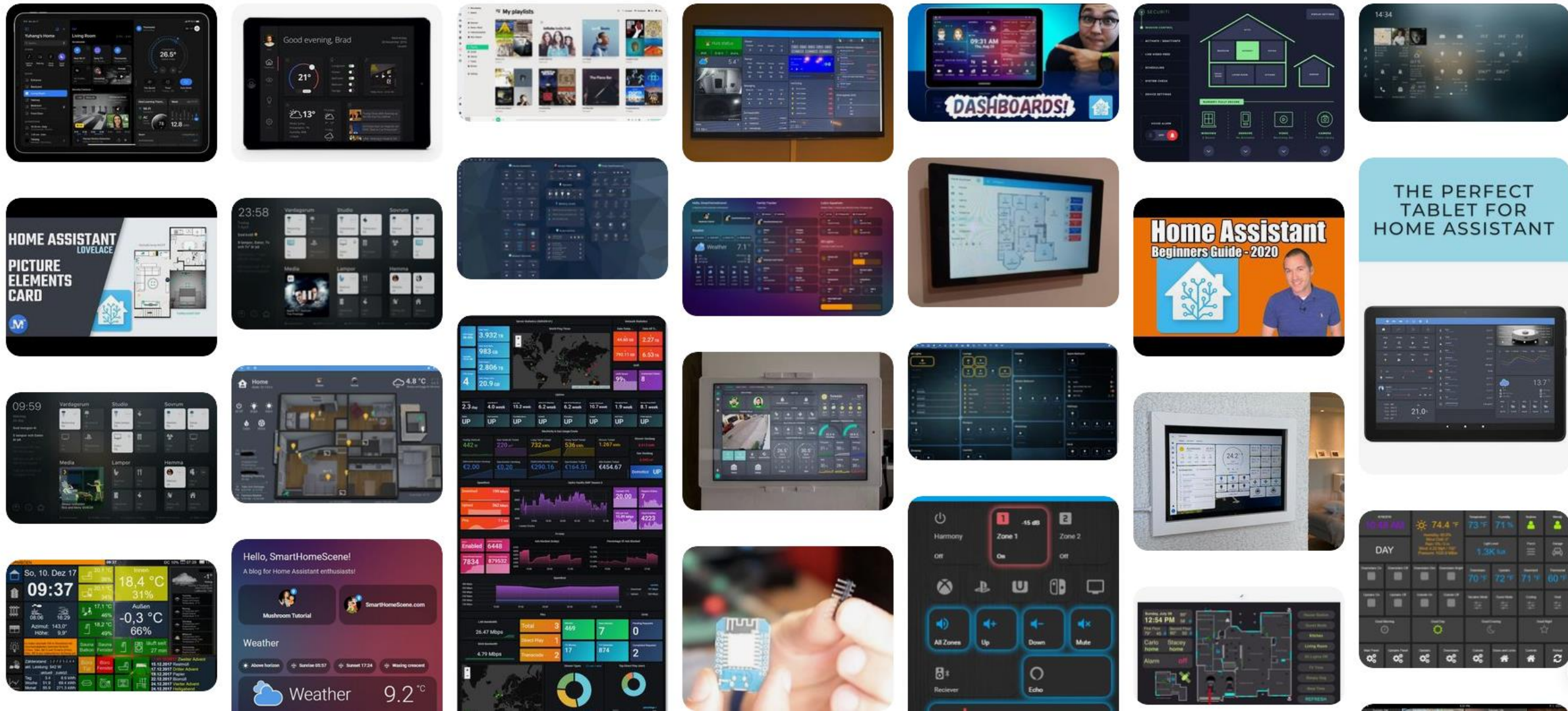


CFO DASHBOARD

Dynamic & Flexible dashboard template
Ready dashboard, just plug your data!



Go to Pinterest and search on Home Assistant Dashboards for ideas



Example of an Integration – Firmata Support

- <https://www.home-assistant.io/integrations/firmata/>

[Firmata](#) can be used to add analog and digital inputs and outputs to Home Assistant. This allows for buttons, switches, motion detectors, relay control, sensors, potentiometers, dimmers, etc. The component can currently connect to a Firmata board via serial or serial over USB.

The Firmata protocol is a standard protocol for microcontrollers. Most of these boards support digital and analog inputs and outputs. [Arduino](#) and Arduino-compatible microcontroller development boards are the most popular boards to use with Firmata. There is currently support for the following device types within Home Assistant:

- [Binary Sensor](#)
- [Light](#)
- [Sensor](#)
- [Switch](#)

More Integrations – Weather



Ambient home weather stations

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

WRN National Forecast Maps
Weather.gov > National Forecast Maps

National Weather Service
National Headquarters

Customize Your Weather.gov

City, ST

Enter Your City, ST or ZIP Code

Remember Me

Get Weather
[Privacy Policy](#)

Weather Valid 7am EST Mon Dec 26 2022 to 7am EST Tue Dec 27 2022
Fronts Valid 7am EST Mon Dec 26 2022

National Forecast Chart

National Temperature

High Temperature (F) Ending Mon Dec 26 2022 7PM EST (Tue Dec 27 2022 00Z)
National Digital Forecast Database
23z Issuance Graphic created-Dec 26 6:25PM EST

NWS API – to retrieve weather forecasts for your area

Integrations - More

// Dominos Pizza

The `dominos` integration allows you to order Dominos Pizza from within your Home Assistant scripts and automations.

At present, this integration only supports ordering within Canada and the US.

// Ukraine Alarm

The Ukraine Alarm integration uses the `siren.pp.ua` API - public wrapper for [Ukraine Alarm](#) web service to offer air-raid siren notifications. The integration will create 6 binary sensors for your selected region in Ukraine:

- Air
- Artillery
- Chemical
- Nuclear
- Urban Fights
- Unknown

Siren check interval is set to 10 seconds to avoid overloading the API and still be able to react fast enough.

IOT - Monitoring & Controlling Your Home

Commercial Sensor Types

- Water / Flood sensors
- Smoke/Fire / CO2 sensors
- Multi sensors (Temp, Humid, Motion, illumination levels, vibration, etc)
- Door / Window Sensors
- Energy management
 - (current / voltage sensors)
- Smart Thermostats
- Smart Window blinds / coverings
- Smart outlets
- Smart wall switches

Sensor Bus Interconnect

- Wired
 - I2C
 - CAN
 - SPI
 - UART
- Wireless
 - WiFi
 - Z-Wave
 - Zigbee

Z-Wave –<https://en.wikipedia.org/wiki/Z-Wave> US Freq 908.4 and 916 Mhz

Z-Wave is a [wireless](#) communications protocol used primarily for residential and commercial building automation. It is a [mesh network](#) using low-energy radio waves to communicate from device to device,^[2] allowing for wireless control of smart home devices, such as smart lights, security systems, thermostats, sensors, smart door locks, and garage door openers.^{[3][4]} The Z-Wave brand and technology are owned by [Silicon Labs](#). Over 300 companies involved in this technology are gathered within the Z-Wave Alliance.

Like other protocols and systems aimed at the residential, commercial, [MDU](#) and building markets, a Z-Wave system can be controlled from a smart phone, tablet, or computer, and locally through a smart speaker, wireless [keyfob](#), or wall-mounted panel with a Z-Wave gateway or central control device serving as both the hub or controller.^{[3][5]} Z-Wave provides the application layer interoperability between home control systems of different manufacturers that are a part of its alliance. There is a growing number of interoperable Z-Wave products; over 1,700 in 2017,^[6] over 2,600 by 2019,^[7] and over 4,000 by 2022.^{[8][9]}

Zigbee - <https://en.wikipedia.org/wiki/Zigbee> 915 Mhz or 2.4Ghz

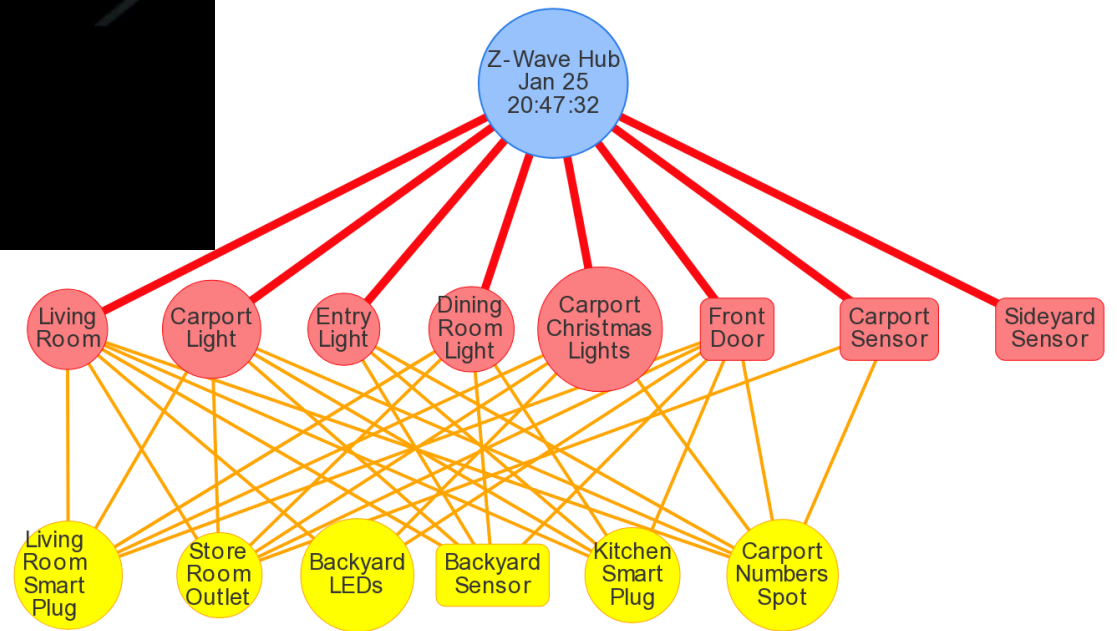
Zigbee is an [IEEE 802.15.4](#)-based [specification](#) for a suite of high-level communication protocols used to create [personal area networks](#) with small, low-power [digital radios](#), such as for [home automation](#), medical device data collection, and other low-power low-bandwidth needs, designed for small scale projects which need wireless connection. Hence, Zigbee is a low-power, low data rate, and close proximity (i.e., personal area) [wireless ad hoc network](#).

The technology defined by the Zigbee specification is intended to be simpler and less expensive than other [wireless personal area networks](#) (WPANs), such as [Bluetooth](#) or more general wireless networking such as [Wi-Fi](#). Applications include wireless light switches, [home energy monitors](#), traffic management systems, and other consumer and industrial equipment that requires short-range low-rate wireless data transfer.

Its low power consumption limits transmission distances to 10–100 meters [line-of-sight](#), depending on power output and environmental characteristics.^[1] Zigbee devices can transmit data over long distances by passing data through a [mesh network](#) of intermediate devices to reach more distant ones. Zigbee is typically used in low data rate applications that require long battery life and secure networking. (Zigbee networks are secured by 128 bit [symmetric encryption](#) keys.) Zigbee has a defined rate of up to 250 kbit/s, best suited for intermittent data transmissions from a sensor or input device.

Zigbee was conceived in 1998, standardized in 2003, and revised in 2006. The name refers to the [waggle dance](#) of honey bees after their return to the beehive.^[2]

Z-Wave Mesh Support / Zigbee Range Extender



Z-Wave / Zigbee Controller



SONOFF Zigbee 3.0 USB Dongle Plus Gateway, Universal Zigbee USB Gateway with Antenna for Home Assistant, Open HAB etc, Wireless Zigbee 3.0 USB Adapter(1 Pack)

Visit the SONOFF Store
★★★★★ 1,242 ratings | 16 answered questions

Amazon's Choice for "zigbee dongle"

\$31⁸⁶

FREE Returns

Coupon: Apply 5% coupon Terms

Get \$60 off instantly: Pay \$0.00 upon approval for the Amazon Rewards Visa Card.

Available at a lower price from other sellers that may not offer free Prime shipping.

Brand SONOFF

Model Number ZB-Dongle-Plus



QuickStick Combo, HUSBZB-1, by Nortek, Cert ID: ZC10-15090013

Brand: Z-Wave Plus
★★★★★ 88 ratings

\$44⁹⁵

Get \$60 off instantly: Pay \$0.00 upon approval for the Amazon Rewards Visa Card.



Roll over image to zoom in



- A USB stick that houses both a Z-Wave and Zigbee radio.
- Z-Wave Certification ID: ZC10-15090013
- Frequency Region: U.S./Canada/Mexico, Z-Wave Library Version: 6.51.06
- Device Categories: Controllers

See more product details

Customer ratings by feature

Easy to use ★★★★★ 5.0

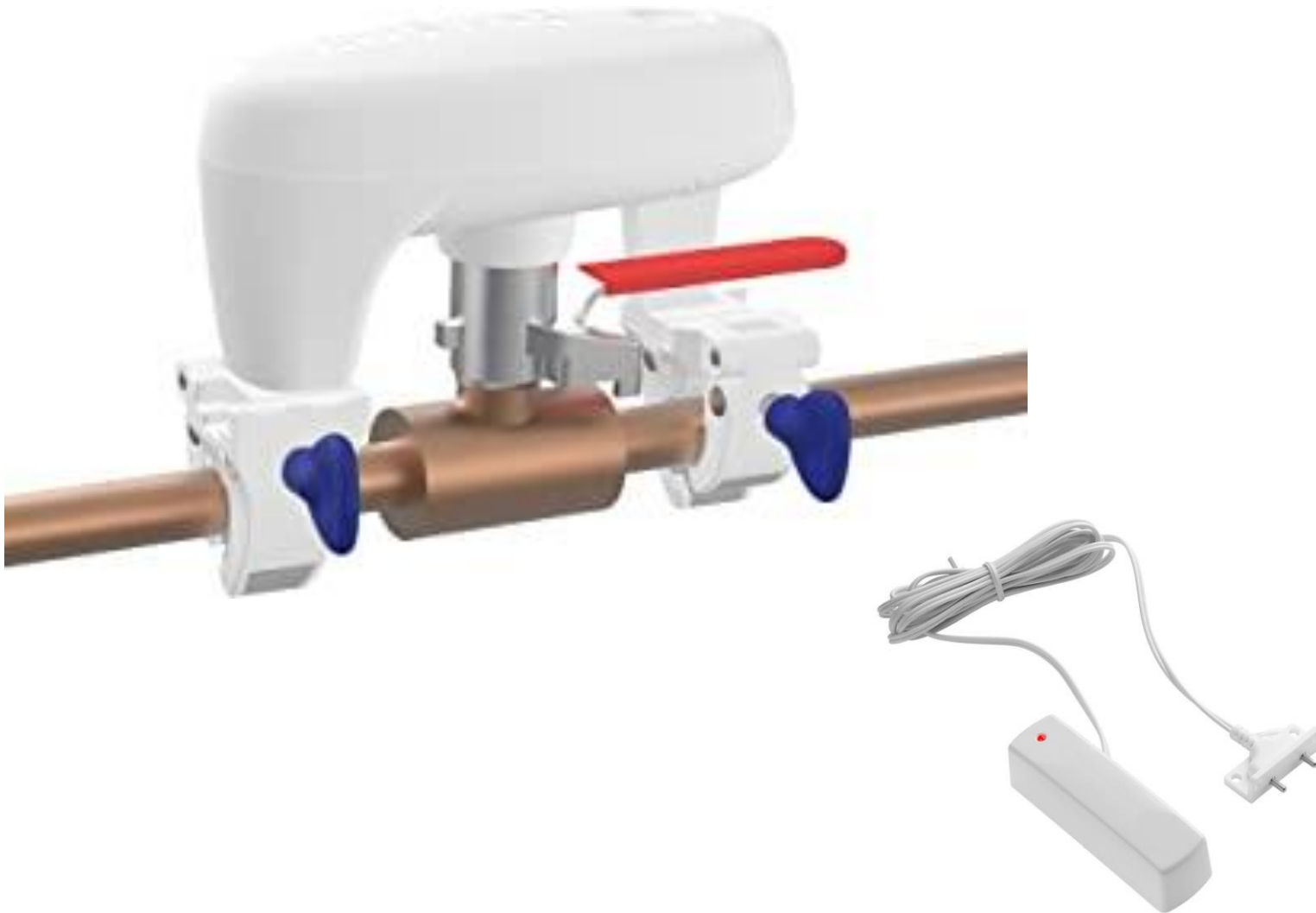
Easy to install ★★★★★ 5.0

See all reviews

Home Automation Devices



Home Automation Devices – 2



Home Automation - Devices



Door & Window Sensors



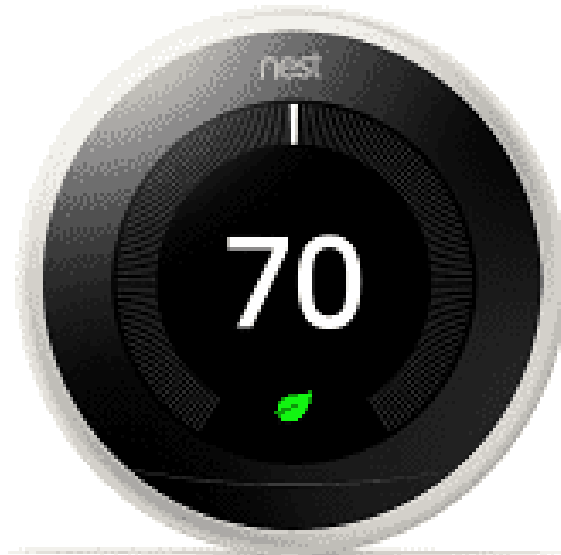
Motion Sensors

Home Automation -



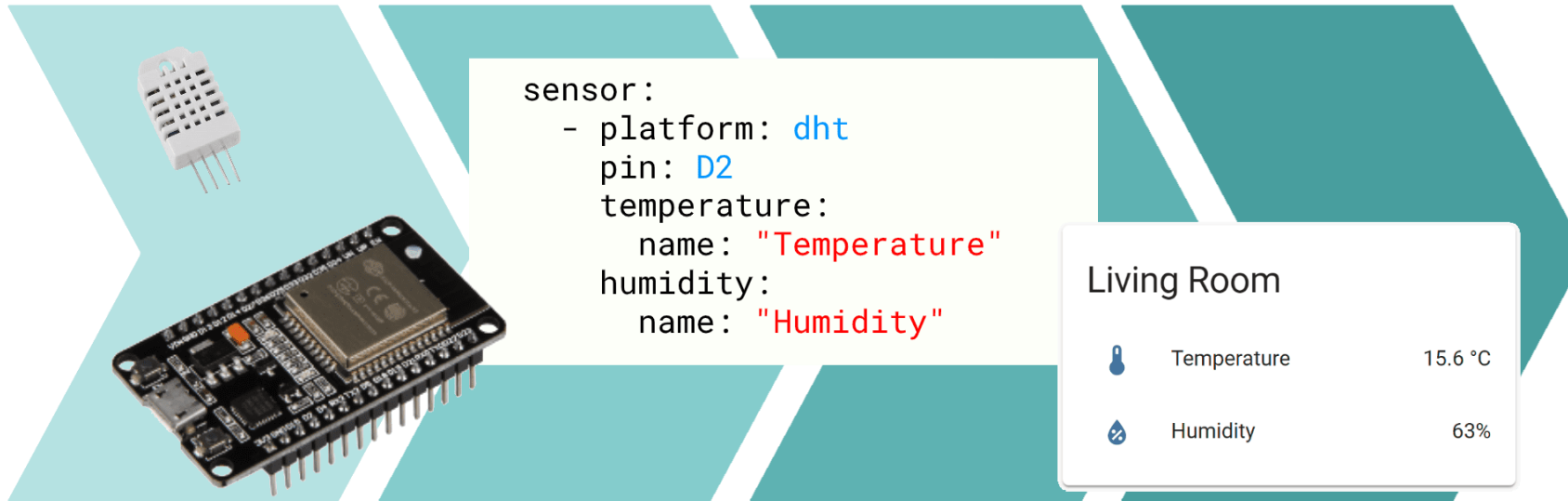
Integrations:

- Ring
- NEST



Z-Wave Enabled
Thermostat

ESPHOME – DIY Sensors



Advantages:

- Much less expensive to build than commercial units
- Utilize the same “core sensor component” that are in the commercial units
- Once the initial firmware has been downloaded .. Supports OTA – (over the air updates)

```
# tell esphome which board you are using
esphome:
  name: rs12ms01
  platform: ESP8266
  board: nodemcu2
# provide wifi connection inf
wifi:
  ssid: "xxxxxxxxxxxxxxxxxxxxx"
  password: "xxxxxxxxxxxxxxxxx"
# Enable logging
logger:
# Enable Home Assistant API
api:
# enable "over the air updates"
ota:
# Setup Reboot Remotely switch entity
switch:
  - platform: restart
    name: "rs12ms01_restart"
# Now define the sensor
sensor:
  - platform: dht
    model: am2302
    pin: D1
    temperature:
      name: "Living Room Temperature"
    humidity:
      name: "Living Room Humidity"
    update_interval: 60s
#
```


ESPHOME - Choose from 3 types of Nodes

ESP8266	ESP32	RP2040
ESP8266	ESP32	RP2040



6pcs ESP8266 NodeMCU LUA CH340 ESP-12E WiFi Internet Development Board 4M Flash Serial Wireless Module for Arduino IDE/Micropython New Version

★★★★☆ ~ 96

\$20⁹⁹

✓prime FREE Delivery Thu, Dec 22
Arrives before Christmas

Amazon's Choice



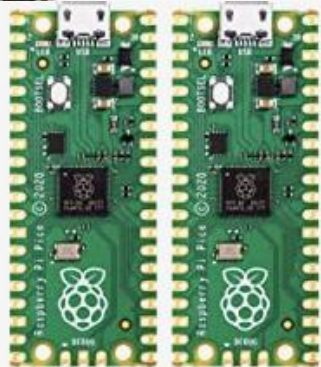
Sponsored ⓘ

Tyleten Robot ESP32S ESP32 ESP-WROOM-32 Development Board 2.4GHz Dual-Core WiFi +Bluetooth 2 Function Microcontroller for Arduino (ESP32 30P, 3PCS)

★★★★☆ ~ 346

\$17⁸⁸ ~~\$19.88~~

✓prime FREE Delivery Thu, Dec 22
Arrives before Christmas



Raspberry Pi Pico RP2040 microcontroller - in US Stock, Ready to Ship (2 Pack)

★★★★☆ ~ 492

\$14⁹⁹

FREE Delivery by Fri, Dec 30 for Prime members

More Buying Choices
\$13.29 (8 new offers)

Choose the sensor you need

Quick search

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Air Quality

		
AirThings BLE	CCS811	HM3301
Radon	CO2 & Volatile organics	Particulate
		
MH-Z19	PM1006 Sensor	PMSA003I
CO2 & Temperature	Particulate	Particulate
		
PMSX003	RadonEye BLE	SDS011 Sensor
Particulate	Radon	Particulate
		
SEN5x	SenseAir	SCD30
Temperature & Humidity	CO2	CO2 & Temperature & Humidity
		
SCD4X		SCR4x

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Cover Components

Text Sensor Components







Climate Components

Number Components

Analogue

		
ADC	ADC128S102	ADS1115
ESP internal	8-channel ADC	4-channel ADC
		
CD74HC4067	MCP3008	MCP3204/MCP3208
16-channel analog multiplexer	8-channel ADC	4-channel ADC
		
Resistance		

Bluetooth Low Energy (BLE)

		
AM43	BLE Client Sensor	BLE RSSI
Lux & Battery level		
		

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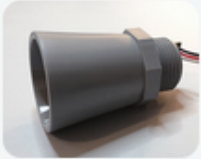


[Number Components](#)

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Digital Signals

		
Duty Cycle	Pulse Counter	Pulse Meter
		
Pulse Width		

Distance

		
HRXL MaxSonar WR	TOF10120	Ultrasonic Sensor
Acoustic distance	IR optical distance	Acoustic distance
		
VL53Lox		
IR optical distance		

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Electricity

ADE7953		
ADE7953 Power	ATM90E32 Voltage & Current & Power	BL0939 Voltage & Current & Power & Energy
		
BL0940 Voltage & Current & Power	BL0942 Voltage & Current & Power	CS5460A Voltage & Current & Power
CSE7761	CSE7766	
CSE7761 Voltage & Current & Power	CSE7766 Voltage & Current & Power	CT Clamp AC current
	DSMR	HLW8012
Daly BMS	DSMR	HLW8012

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Environmental

		
AHT10 / AHT20 / AHT21 / DHT20	AirThings BLE	AM2320
Temperature & Humidity	Temperature & Humidity & Pressure	Temperature & Humidity
		
BME280	BME680	BME680 via BSEC
Temperature & Humidity & Pressure	Temperature & Humidity & Pressure & Gas	Temperature & Humidity & Pressure & Gas
		
BMP085	BMP280	BMP388 and BMP390
Temperature & Pressure	Temperature & Pressure	Temperature & Pressure
		
b-parasite	Dallas DS18B20	DHT

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Light

		
AM43	APDS9960	BH1750
Lux	Colour & Gesture	Lux
	MAX44009	
LTR390	MAX44009	TCS34725
Lux & UV	Lux	Lux & RGB colour
		
TSL2561	TSL2591	
Lux	Lux	

Magnetic

		
ESP32 Hall Sensor	HMC5883L	MLX90393
ESP internal	3-Axis magnetometer	3-Axis magnetometer
		

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Motion

		
APDS9960 Colour & Gesture	MPU6050 Accelerometer & Gyroscope	MPU6886 Accelerometer & Gyroscope
		
RuuviTag Temperature & Humidity & Accelerometer		

Thermocouple






		
MAX31855 K-Type	MAX31856 All types	MAX31865 Platinum RTD
		

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Binary Sensor Components

Output Components

Light Components



















Switch Components

Button Components

Fan Components

Display Components

Binary Sensor Components

		
Binary Sensor Core	GPIO	Home Assistant
		
Status	Analog Threshold	ESP32 BLE Presence
		
ESP32 Touch Pad	Hydreon Rain Sensor Binary Sensor	MPR121 Capacitive Touch Sensor
		
Nextion Binary Sensor	Template Binary Sensor	PN532
		
RC522	RDM6300	TTP229
		

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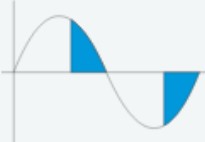











[Text Sensor Components](#)

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Output Components

		
Output Core	ESP8266 Software PWM	Slow PWM
		
GPIO Output	ESP32 DAC	ESP32 LEDC
		
AC Dimmer	PCA9685	TLC59208F
		
TLC5947	MY9231/MY9291	SM16716
		
SM2135	MCP4725	MCP4728
		
MCP47A1	DAC7678	BLE Binary Output

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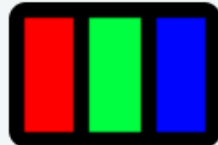
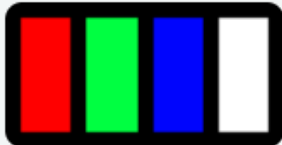
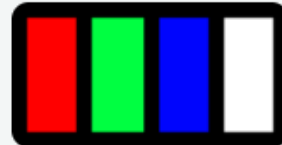
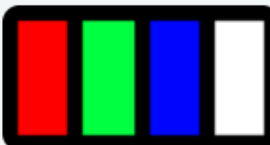








Text Sensor Components

Climate Components

Number Components

Select Components

Light Components

		
Light Core	Binary Light	Status Led
		
Monochromatic Light	Cold+Warm White Light	Color Temperature Light
		
RGB Light	RGBW Light	RGBWW Light
		
RGBCT Light	FastLED Light	NeoPixelBus Light
		
Light Partition	Tuya Dimmer	Shelly Dimmer
		
Custom Light	H-bridge Light	Sonoff D1 Dimmer

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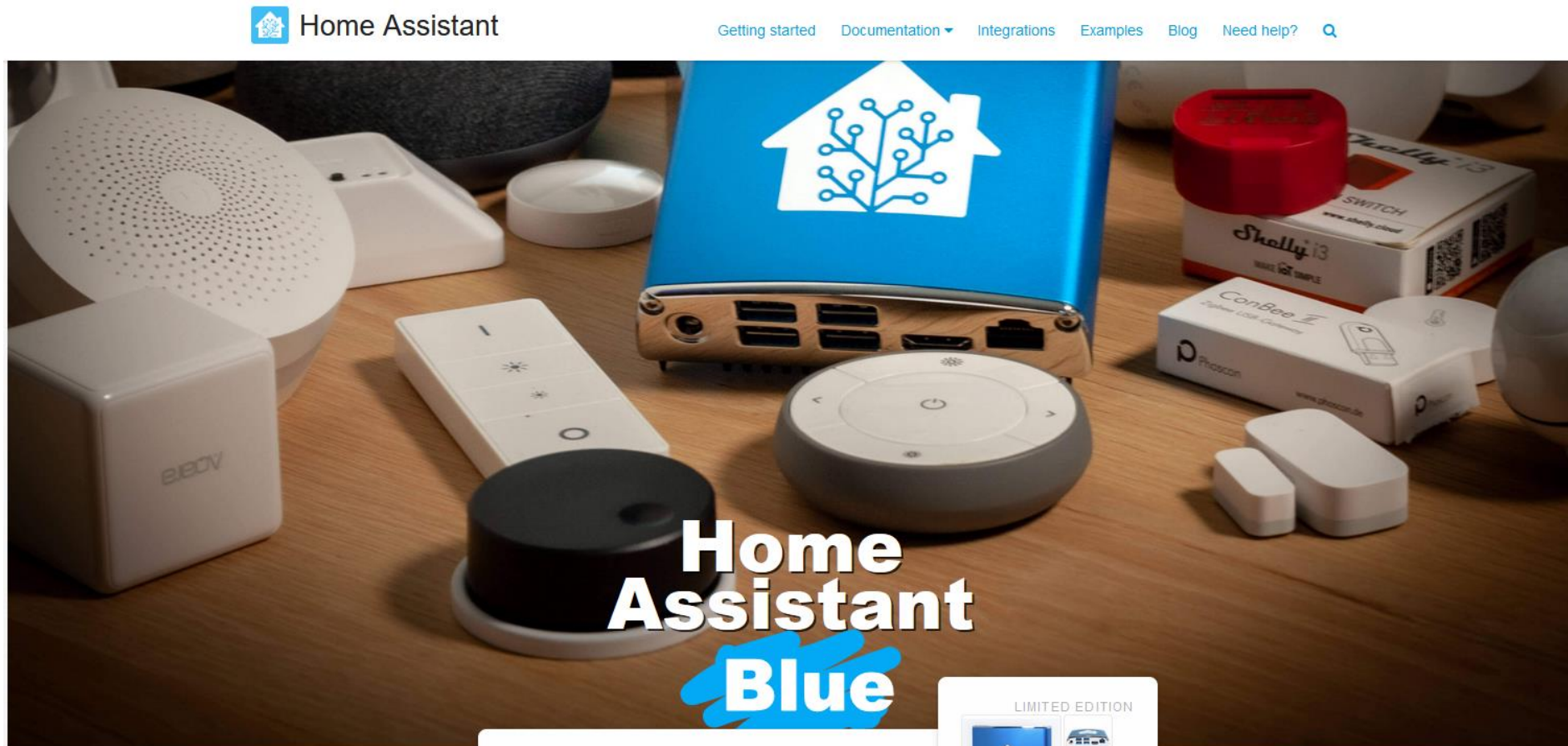
		
Display Core	Addressable Light	LCD Display
		
MAX7219	MAX7219 Dot Matrix	TM1621
		
TM1637	TM1638	Nextion
		
PVVX MiThermometer	SSD1306	SSD1322
		
SSD1325	SSD1327	SSD1331
		
SSD1351	ST7735	ST7789V



So .. You ready to try it ...
... What Hardware will it run on ?

Want HA but don't want to "build from parts" ..


<https://www.home-assistant.io/blue/>



Available today

The limited edition Home Assistant Blue bundle is hardware that is affordable and fast, packed in a custom-designed and gorgeous case, and powered by the most powerful home automation software on the planet: Home Assistant.

LIMITED EDITION



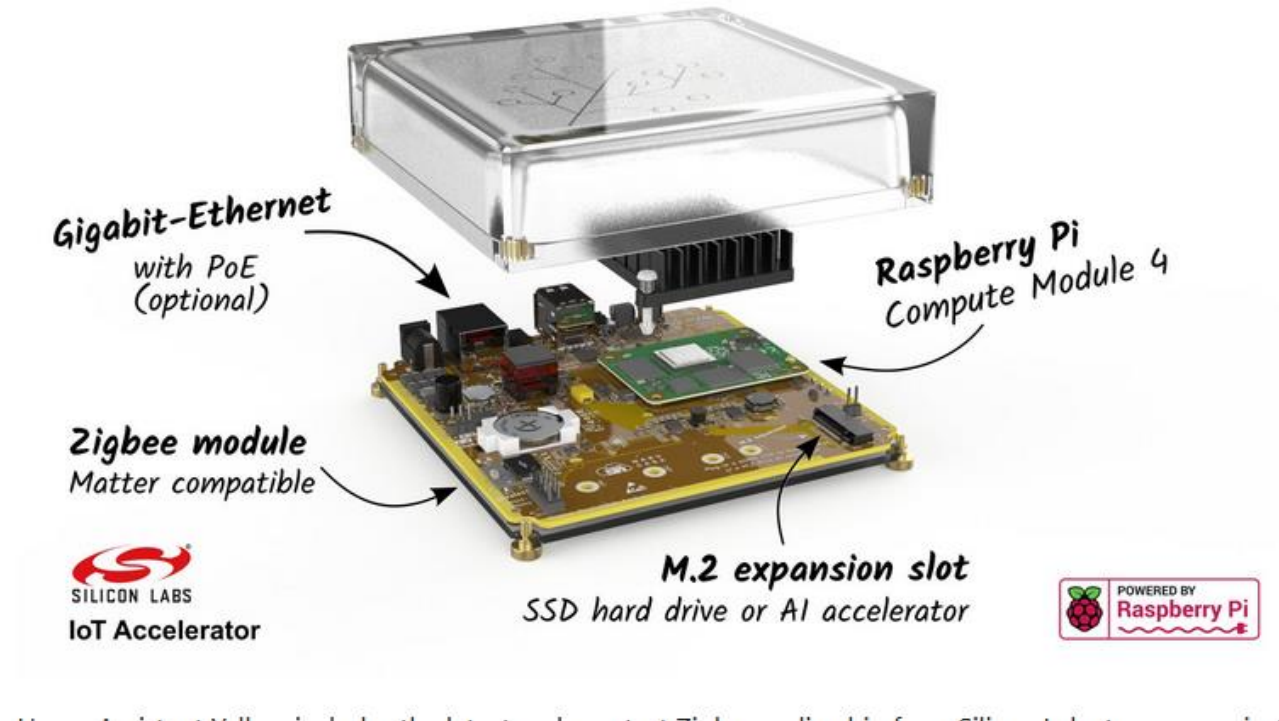
Out Of Stock

Also Check out the Home Assistant YELLOW Project

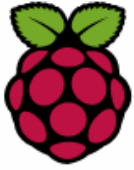
Home Assistant Yellow grows with you.

A home is not static. As we grow as a person or expand our family, our homes evolve. What we buy today, should work tomorrow. With Home Assistant Yellow we have created a system that can be upgraded so it can keep up as you grow.

At the heart of Home Assistant Yellow is the Raspberry Pi Compute Module 4. This plugs into the Home Assistant Yellow board and provides the brains. You can upgrade to a more powerful version of the Compute Module 4 at any time.



<https://www.crowdsupply.com/nabu-casa/home-assistant-yellow>



Raspberry Pi

- Home Assistant Operating System
- Home Assistant Container
- Home Assistant Core



Raspberry Pi 4 Model B 2019 Quad Core 64 Bit WiFi Bluetooth (2GB)

Brand: Raspberry
★★★★★ - 16,613 ratings | 178 answered questions

\$135⁰⁰

prime
FREE Returns
With Amazon Business, you would have saved \$85.43 in the last year. Create a free account and save up to 1% today.

Best price **\$** **S+**

Pay \$135.00 \$91.96 after using available Amazon Rewards Visa Card Points.

May be available at a lower price from other sellers, potentially without free Prime shipping.

Size: 2GB

\$119.37 prime \$135.00 prime \$174.90



ODROID

- Home Assistant Operating System
- Home Assistant Container
- Home Assistant Core



Amazon's Choice

ODROID N2 Single Board Computer (SBC) (4GB) with Power Supply

★★★★★ ~ 35

\$136⁹⁵

Get it Wed, Dec 28 - Fri, Dec 30
FREE Shipping

Options: 2 sizes



-Package Content-

Power Adapter

Micro USB Cable

Tinker Board S R2.0 Single Board Computer RK3288 SoC 1.8GHz Quad Core CPU, 600MHz Mali-T764 GPU, 2GB LPDDR3 & 16GB eMMC Motherboard

Brand: SmartFly Info
★★★★☆ - 5 ratings

\$149⁹⁹

prime
FREE Returns
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Best price **\$** **S+**

May be available at a lower price from other sellers, potentially without free Prime shipping.

Enhance your purchase

Payment plans
2 options from \$25.00/mo (6 mo) with 0% APR

One-time payment
\$149.99

ORDER PLACED November 28, 2022 TOTAL \$137.04 SHIP TO Bruce P Semple

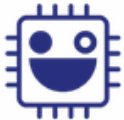
Delivered Dec 7, 2022

lenovo ThinkCentre M900 Tiny Desktop Micro Tower PC (Intel Core i5-6500T, 8 GB Ram, 256 GB SSD, USB 3.0, WiFi) Windows 10 Pro (Renewed)

Return eligible through Mar 3, 2023

Buy it again View your item

WHAT Will HOMEASSISTANT RUN ON?



ASUS Tinkerboard

- Home Assistant Operating System
- Home Assistant Container
- Home Assistant Core



Generic x86-64 (e.g. Intel NUC)

- Home Assistant Operating System
- Home Assistant Container
- Home Assistant Core



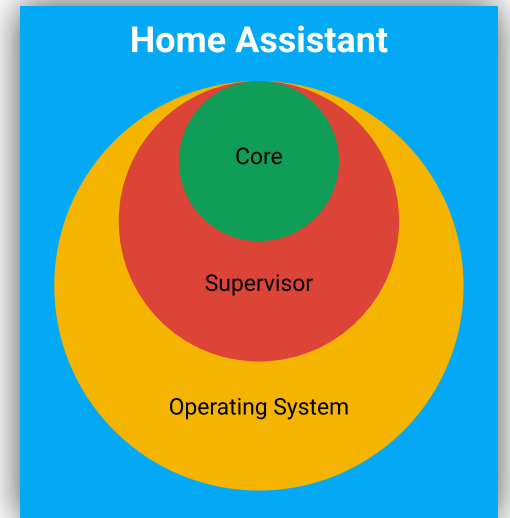
Home Assistant Installation Options

Home Assistant offers four different installation methods. We recommend using one of the following two methods:

- **Home Assistant Operating System:** Minimal Operating System optimized to power Home Assistant. It comes with Supervisor to manage Home Assistant Core and Add-ons. **Recommended installation method.**
 - **HASIO**
- **Home Assistant Container:** Standalone container-based installation of Home Assistant Core (e.g. Docker).

There are two alternative installation methods available for experienced users:

- **Home Assistant Supervised:** Manual installation of the Supervisor.
 - **Home Assistant Core:** Manual installation using Python virtual environment.
- There is an installation link provided for each hardware type.
 - The subsequent instructions will guide you through the installation steps for that particular type of hardware
 - The instructions will provide the link to the installation image that contains both the OS and Home Assistant environment.



Installation – Raspberry Pi

- Mount the SD card on a Windows/Linux system
- Use Balena Etcher (<https://www.balena.io/etcher/>) to write the bootable image from the website to the SD Card
- Move the SD card to your Raspberry Pi
- Connect Ethernet Cable, & Power On Pi
- About 10-15 minutes later ..
 - Open a browser to `http://{your Pi IP address}:8123`
- Follow the on screen prompts to complete the setup.

Installation – Generic X86 – M900

- Open up the M900 and removed the SATA drive
- Attach drive to SATA III USB adapter
- Connect the adapter to your Windows/Linux box
- Use Balena Etcher (<https://www.balena.io/etcher/>) to write the bootable image from the website SATA SSD drive
- Re-Install the drive in your M900
- Connect Ethernet Cable, & Power On Pi
- About 10-15 minutes later .. Open a browser to `http://{your Pi IP address}:8123`
- Follow the on screen prompts to complete the setup.

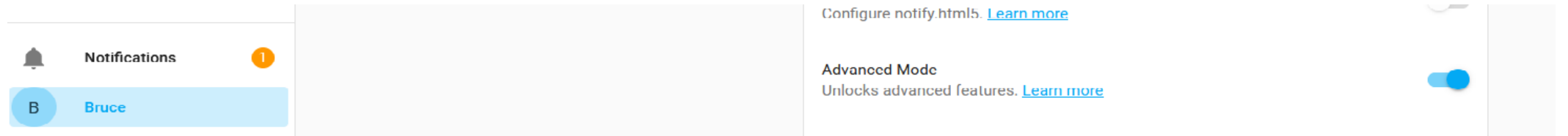


Installation – ODROID N2+

1. Follow the M900 steps to install the boot image to your SATA SSD drive
2. Follow these steps to Configure the ODROID N2+ boot order to boot from the USB attached SSD drive.
 1. <https://jamesachambers.com/odroid-n2-petitboot-ssd-boot-guide/>

Recommended Basic Customization after initial configuration steps

1. Enable “Advanced Mode” - left menu – click on your user/profile name



2. Install the “File Editor” Add on

1. Left menu, Settings -> AddOns → bottom right – add on store – search for “File Editor”
2. Follow screen prompts – there is nothing to configure

3. Always, Always ... if you make any changes to the configuration .yaml file (using the File Editor above)

1. left Menu – Developer Tools – YAML tab (top of screen) -- Check Configuration

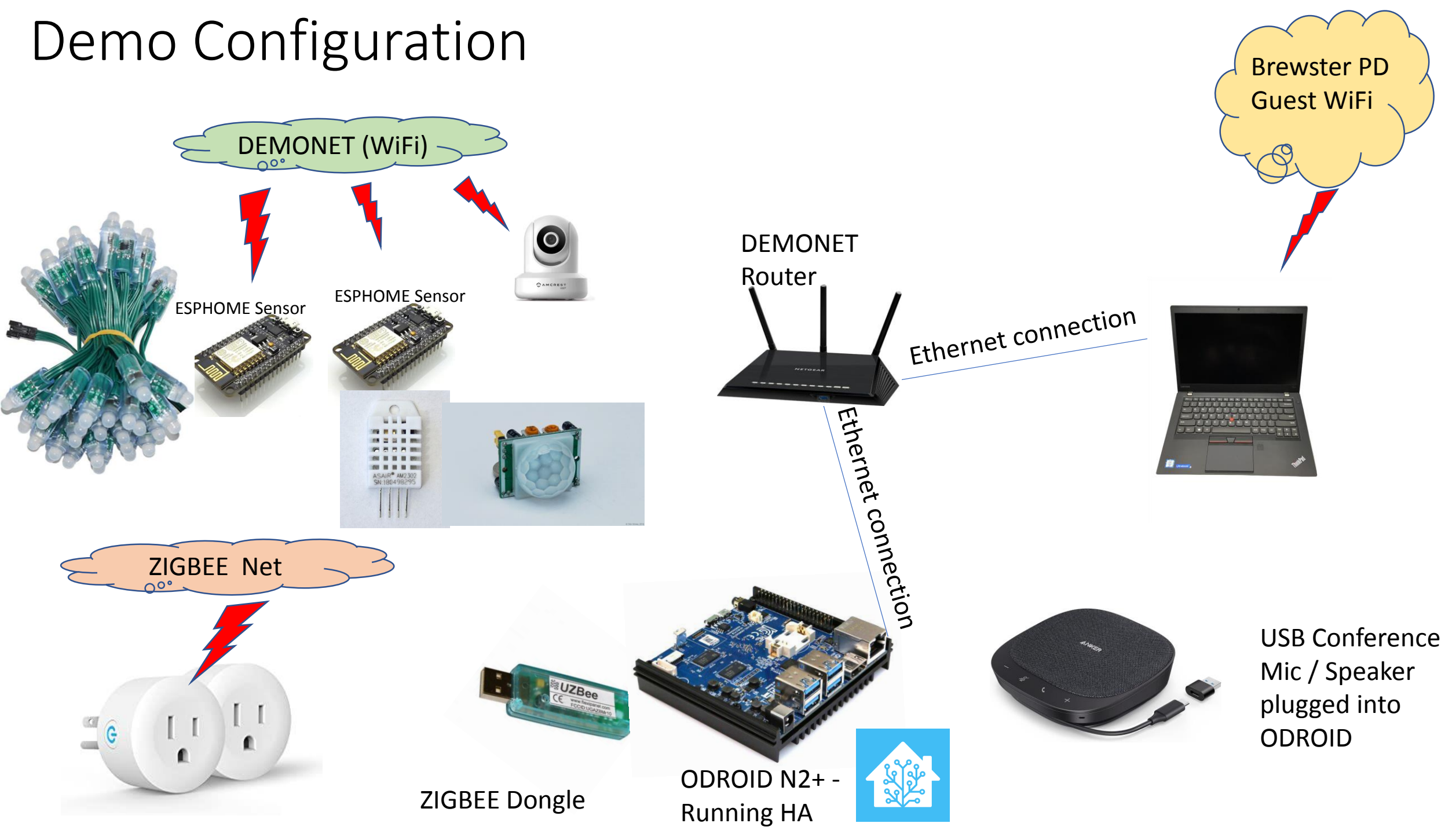
4. Also consider installing the Terminal & SSH add on – this will give you access to the HA command line interface and enable remote SSH to the system.

5. Get off using an SD memory card and move to an SSD disk

Reference Links

- **Home Assistant** - <https://www.home-assistant.io/>
- **Home Assistant Community** - <https://community.home-assistant.io/>
- **ESPHome** - <https://esphome.io/>
- **ZWAVE** - <https://www.z-wave.com/smart-guides>

Demo Configuration



DEMONET (WiFi)

Brewster PD
Guest WiFi

ESPHOME Sensor

ESPHOME Sensor

DEMONET
Router

Ethernet connection

ZIGBEE Net

Ethernet connection

ZIGBEE Dongle

ODROID N2+ -
Running HA

USB Conference
Mic / Speaker
plugged into
ODROID

DEMO

- Add Zigbee devices to the network
- Dashboard Demo – create a basic card
- Create a NodeRed Automation Flow
- Demonstrate Rhasspy Voice
 - Add a voice command To invoke a Node Red Flow
 - Add a voice response .