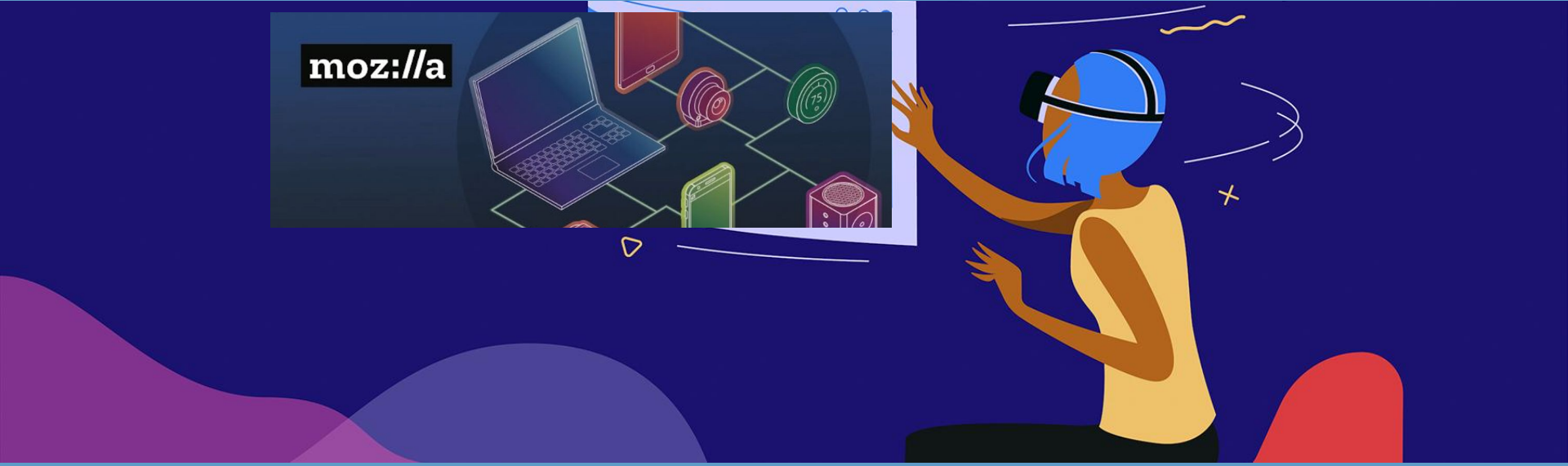

An IoT Forecast That's Sunny ☀ and Clear

(No Clouds!)

Philippe Coval (on behalf of Kathy Giori)
January 2020

web: iot.mozilla.org | twitter: @MozillaIoT @kgiori @RzrFreeFr | source: github.com/mozilla-iot

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Smart home concerns

What risks are worth the value?

Security

I don't want hackers accessing my home network nor launching attacks.

Privacy

My data in the wrong hands would reveal when to break in. Analysts viewing my home habits feels creepy. I don't want any of those listening devices!

Interoperability

I can't figure out how pushing the doorbell can trigger turning on the outside light.

Overall Value

I worry that my investment in time, money, and effort will not provide sufficient value.

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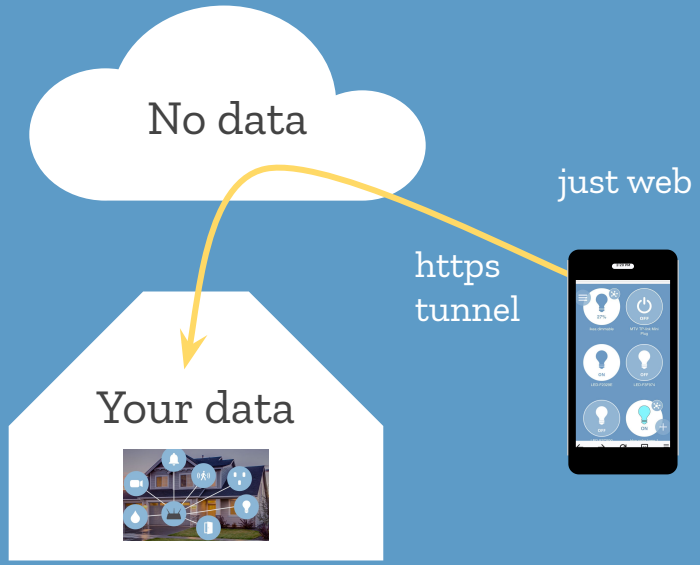
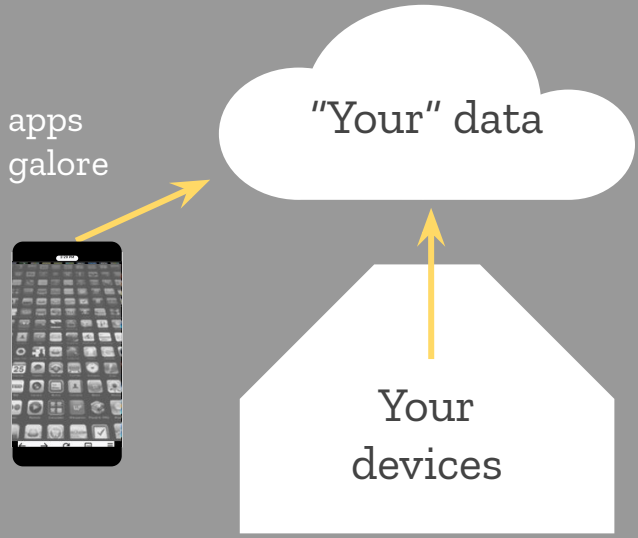


Mozilla Smart Home

(data local, private)



Typical Vendor

(data in cloud)

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Decentralized Web of Things Approach

WebThings Gateway

A software distribution for smart home gateways focused on privacy, security and interoperability

Learn More

IoT

iot.mozilla.org

WebThings Framework

A collection of re-usable software components to help developers build their own web things

Learn More

devices

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Your Own **Private** Smart Home

Gateway

WebThings Gateway

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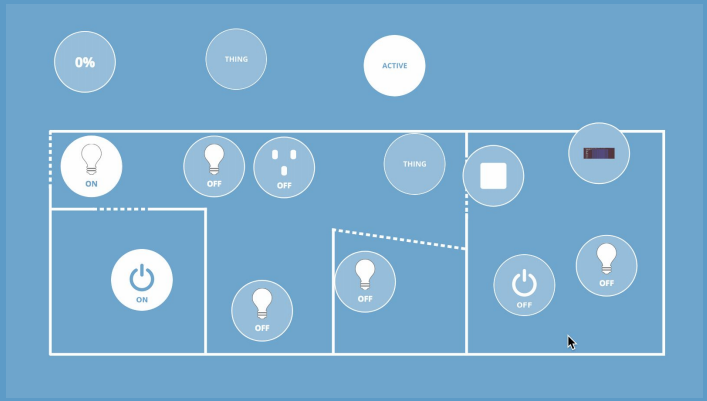
Smart Devices

Consumer Privacy



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Security

Welcome

Choose a secure web address for your gateway:

subdomain .mozilla-iot.org

Email

Please keep me updated about new features and contribution opportunities. Privacy Policy

Create

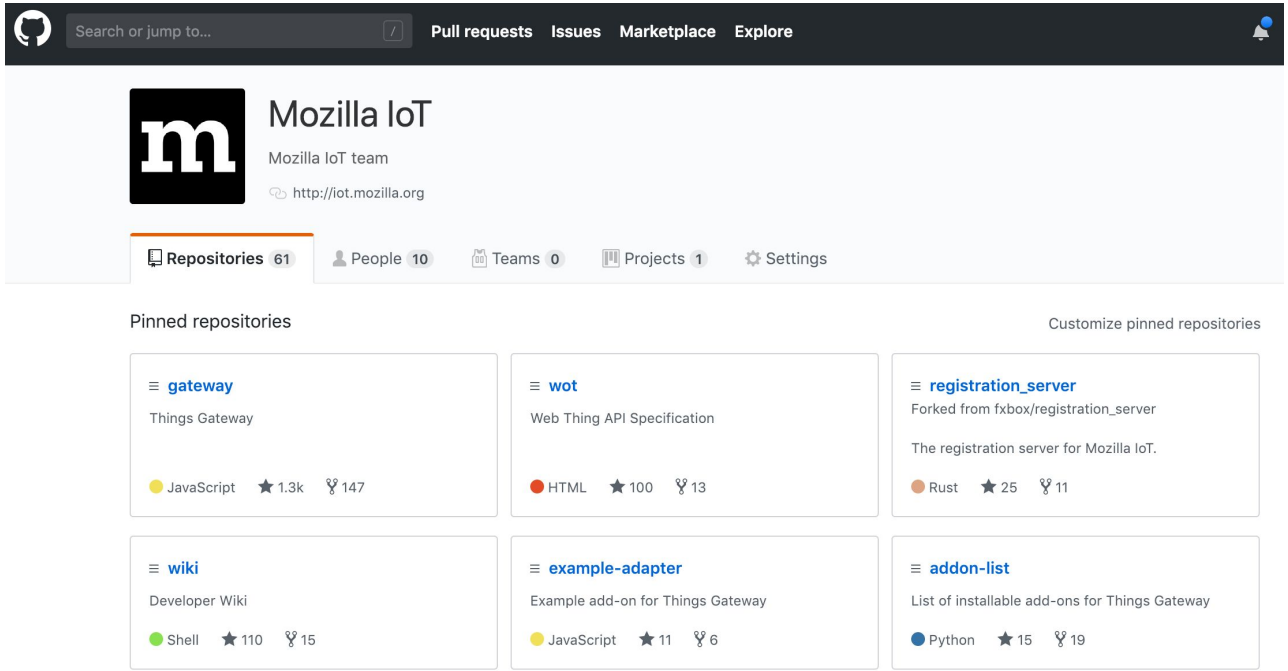
Skip

Things Gateway
by moz://a

Web of Things **Interoperability**

Linking together different smart home systems using the Web of Things.

Open Source Community Development



All of our source code is on GitHub and you can find us in #iot on irc.mozilla.org or ask questions on Discourse.

github.com/mozilla-iot
(post issues to gateway repo)

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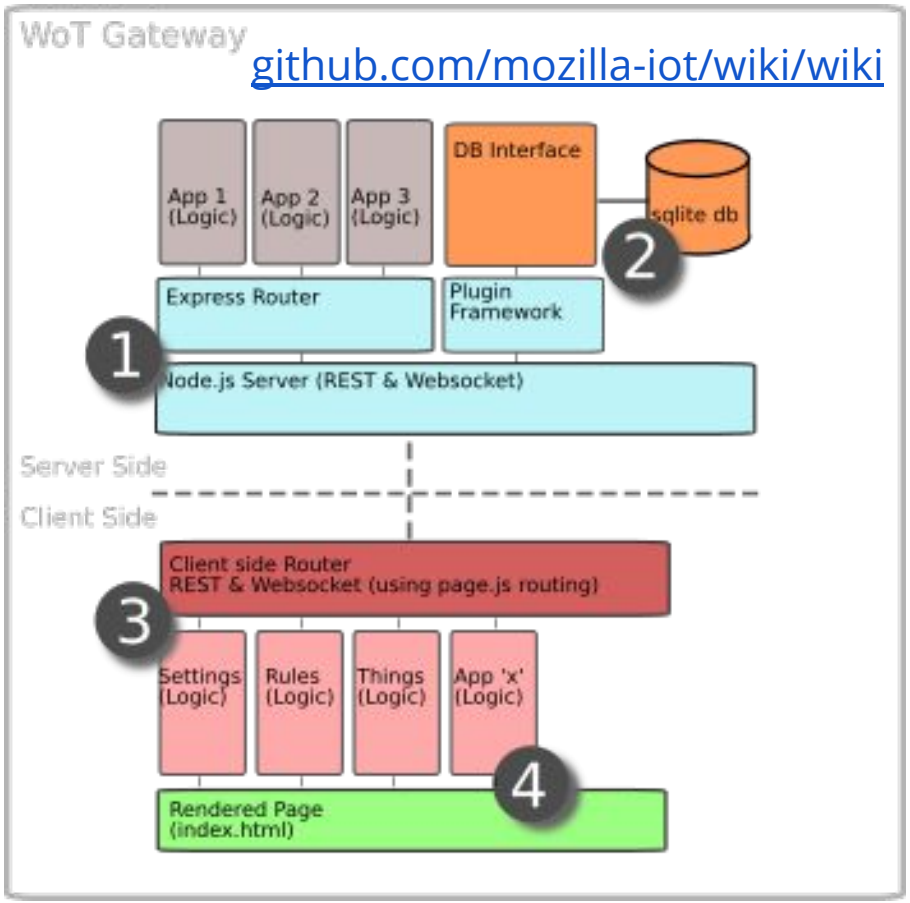
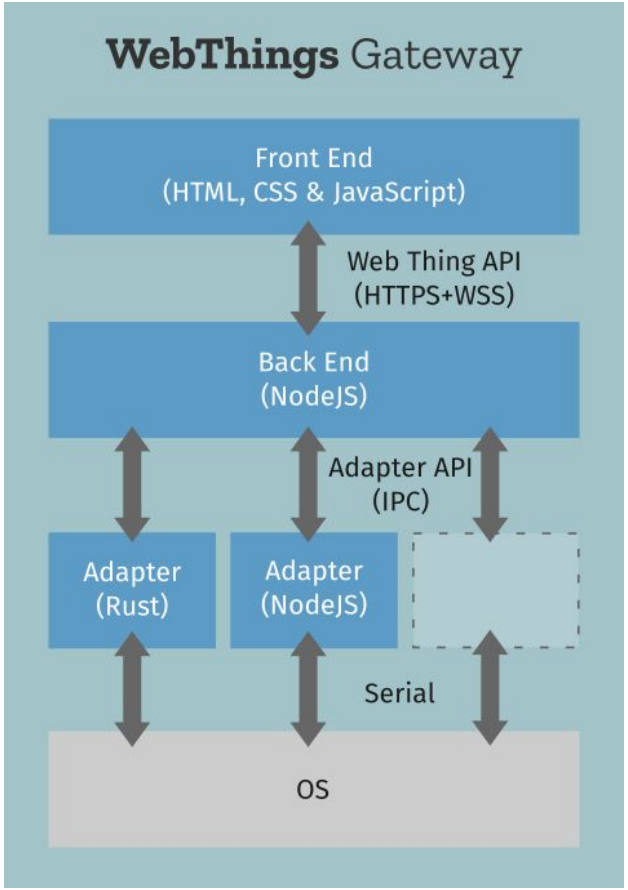
WebThings Gateway Architecture





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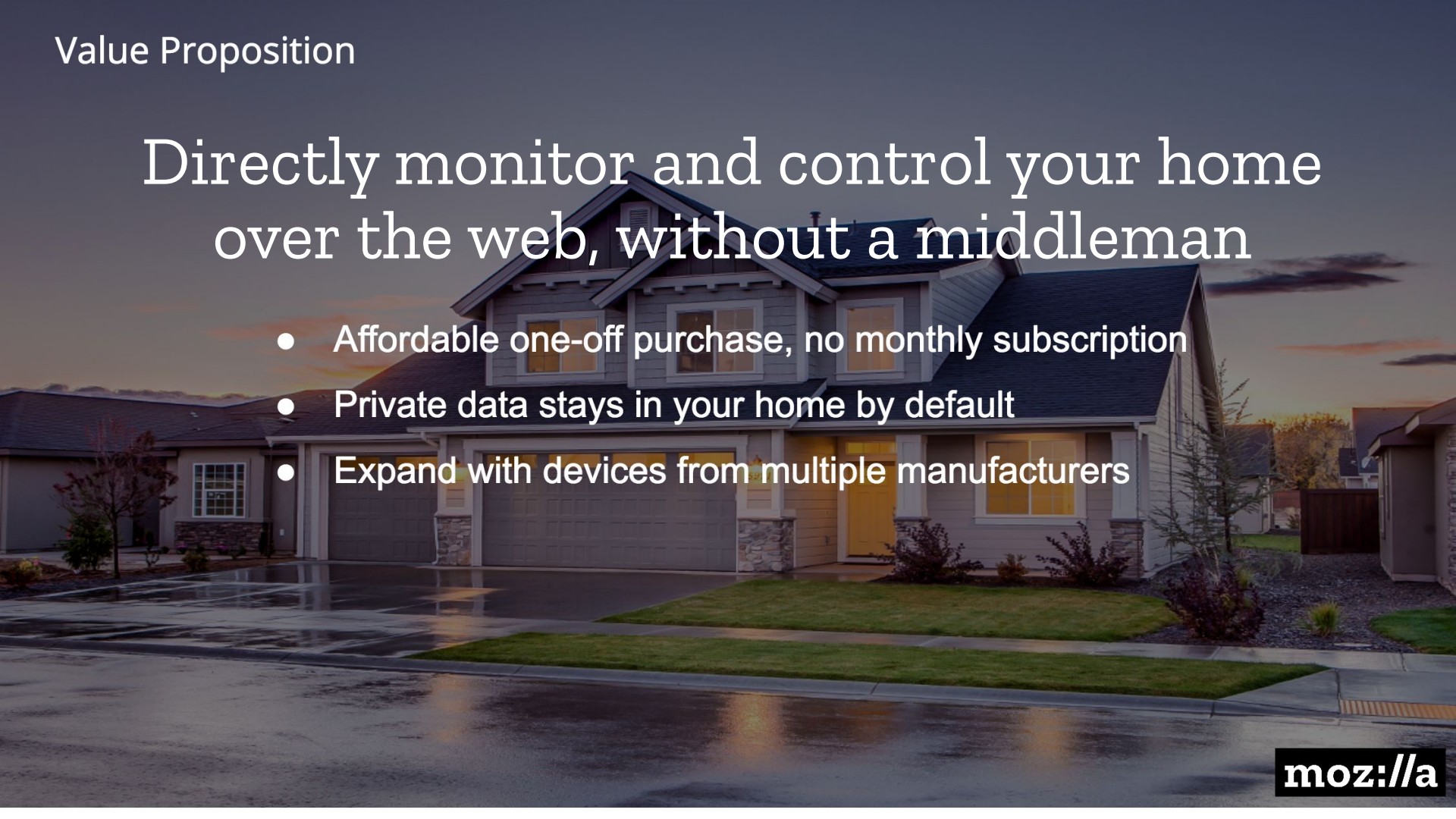
Value Proposition

Directly monitor and control your home over the web, without a middleman

- Affordable one-off purchase, no monthly subscription
- Private data stays in your home by default
- Expand with devices from multiple manufacturers



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Live Demo

- WebThings Gateway
- Tunneling into my office desk in Mountain View, California

or see:
https://youtu.be/3VtH5eVcWSE
https://youtu.be/KF2T58_c4dM
https://youtu.be/YVjNrUwpmgs

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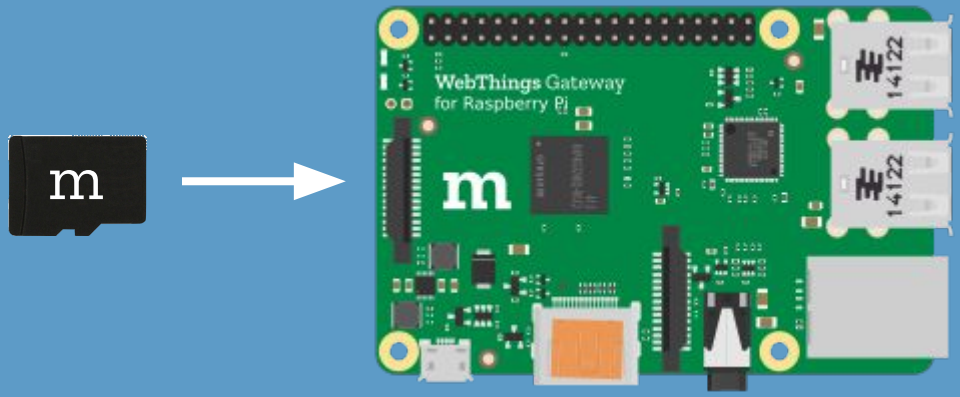
WebThings Gateway Software Image for Raspberry Pi



Do you own an RPi? I have a few uSD cards, pre-loaded with the image (limited quantity)

IoT

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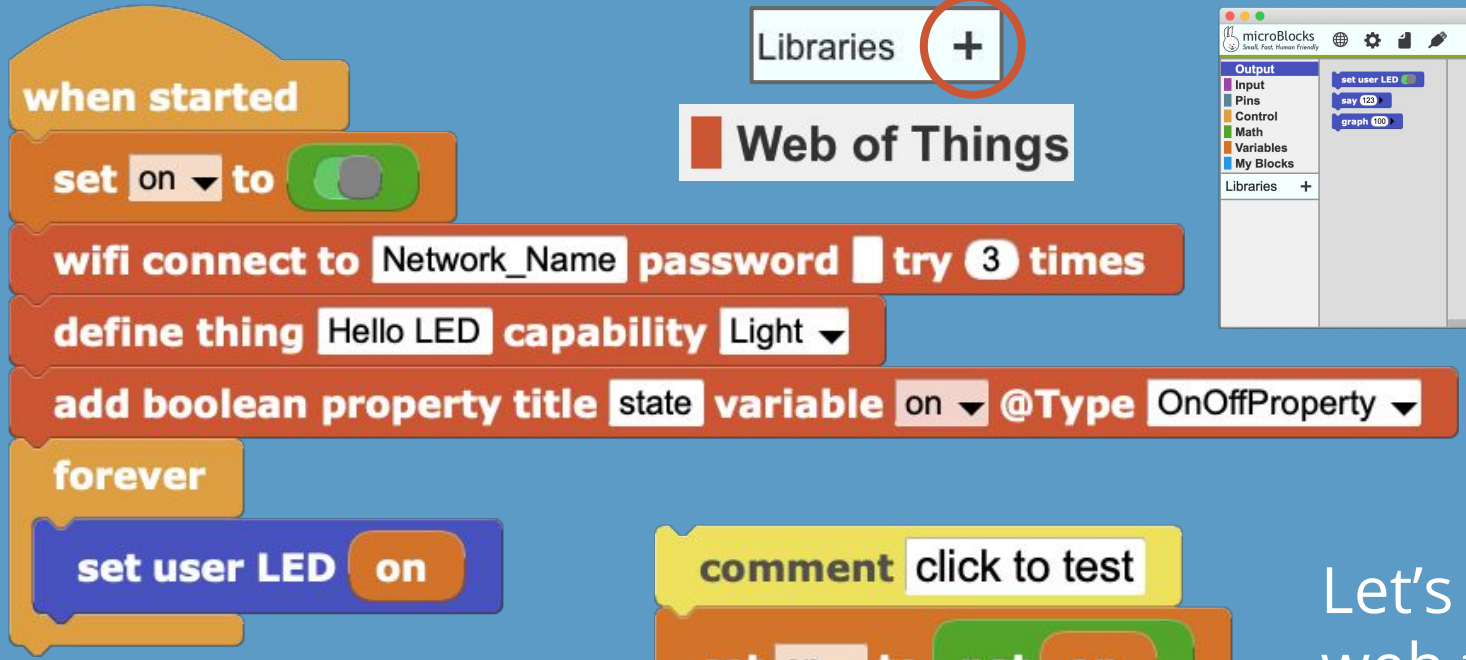
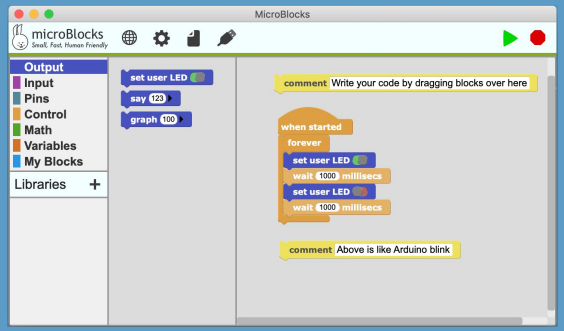
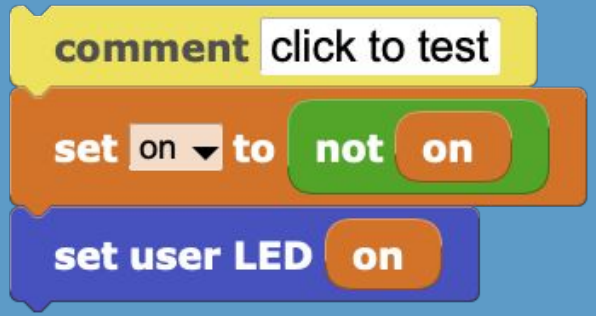
Easily Build Your Own Web Things







Download MicroBlocks from
http://microblocks.fun

Let's build a web thing!

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Thank You!

iot.mozilla.org
@MozillaIoT

Phil Coval, WebThings community contributor and hacker.

Kathy Giori, huge fan (and advisor) MicroBlocks for education, also huge fan of Mozilla (former Mozilla IoT team member)

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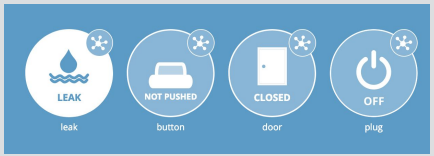
Backup Slides



WebThings

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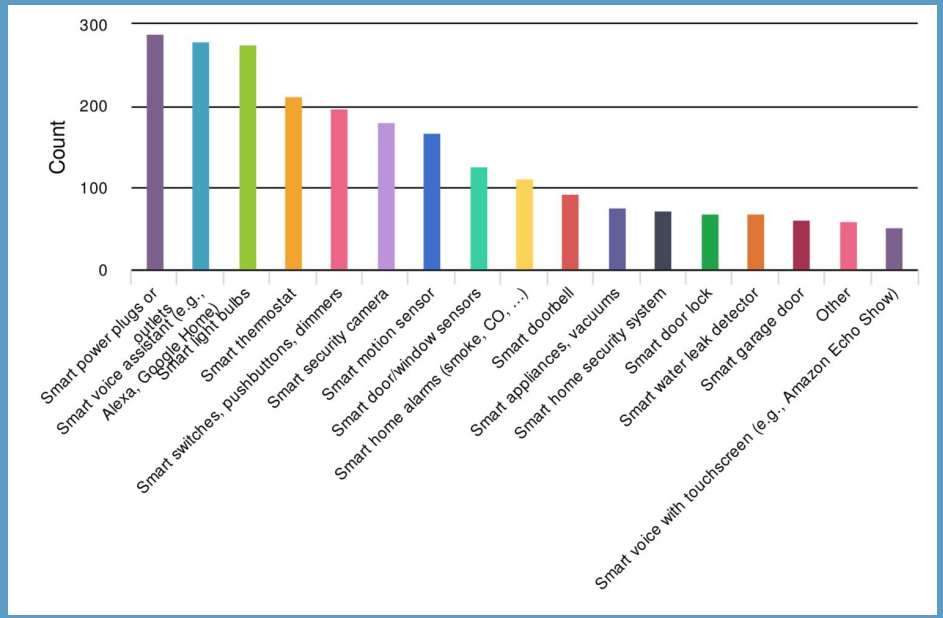
Smart Home Survey Results

- Firefox and WebThings Gateway users (~260 each)



Those WITH at least one smart device but NOT a smart voice assistant

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Smartphone app	1		1,053	207
Secure website	2		729	187
Dedicated touch screen	3		683	175
Wireless remote control	4		600	157
Voice	5		522	150
Text message	6		359	147

Lowest Rank — Highest Rank

Those WITH a smart voice assistant

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Voice	1		1,221	252
Smartphone app	2		1,203	257
Wireless remote control	3		804	217
Dedicated touch screen	4		788	219
Secure website	5		708	220
Text message	6		328	178

Lowest Rank — Highest Rank

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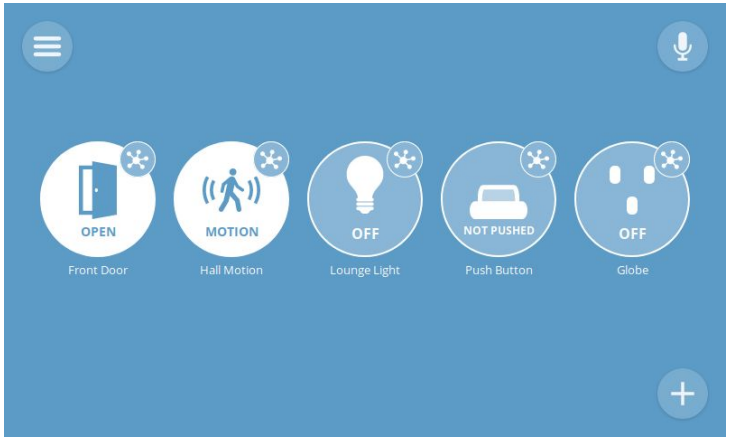
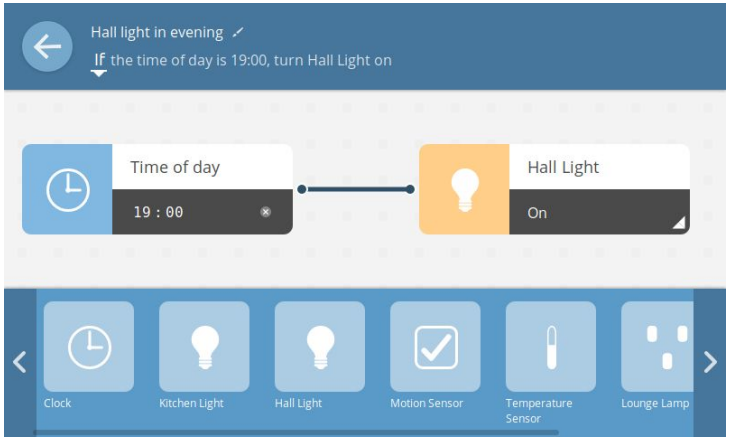
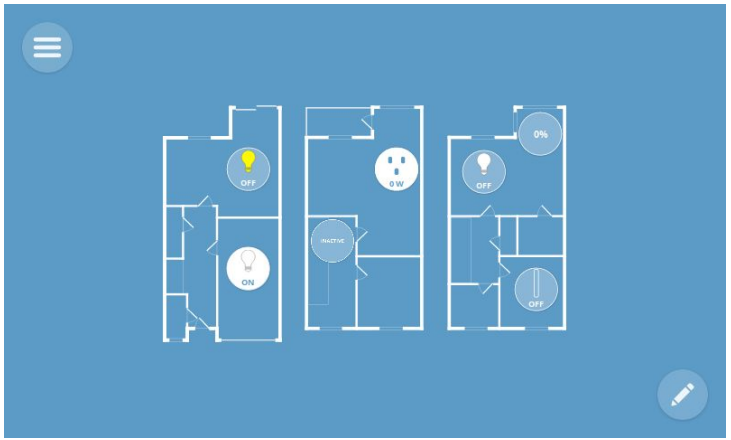
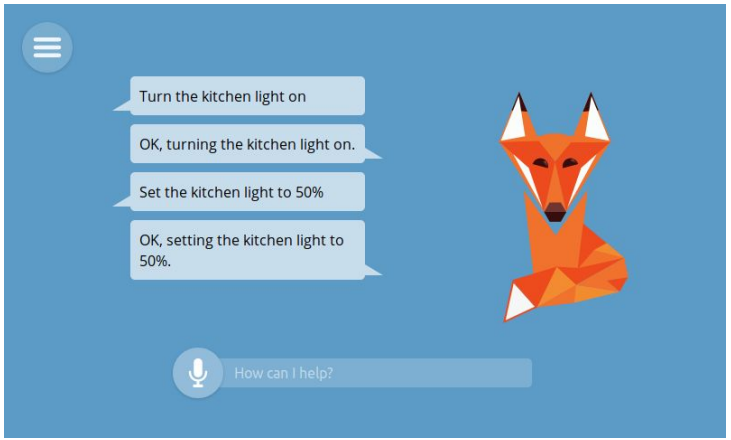
WebThings Gateway UI









Useful Reference Links

- iot.mozilla.org
- github.com/mozilla-iot

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Connected Smart Home Use Cases

Credit: The Hartford and MIT AgeLab

10 Example Use Cases

Credit: The Hartford and MIT AgeLab

Main Categories of Uses

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Mozilla's Decentralized and Privatized Approach to IoT

Enabling IoT devices to be discoverable "on the web" ≠ *Connecting your IoT devices "to the cloud"*

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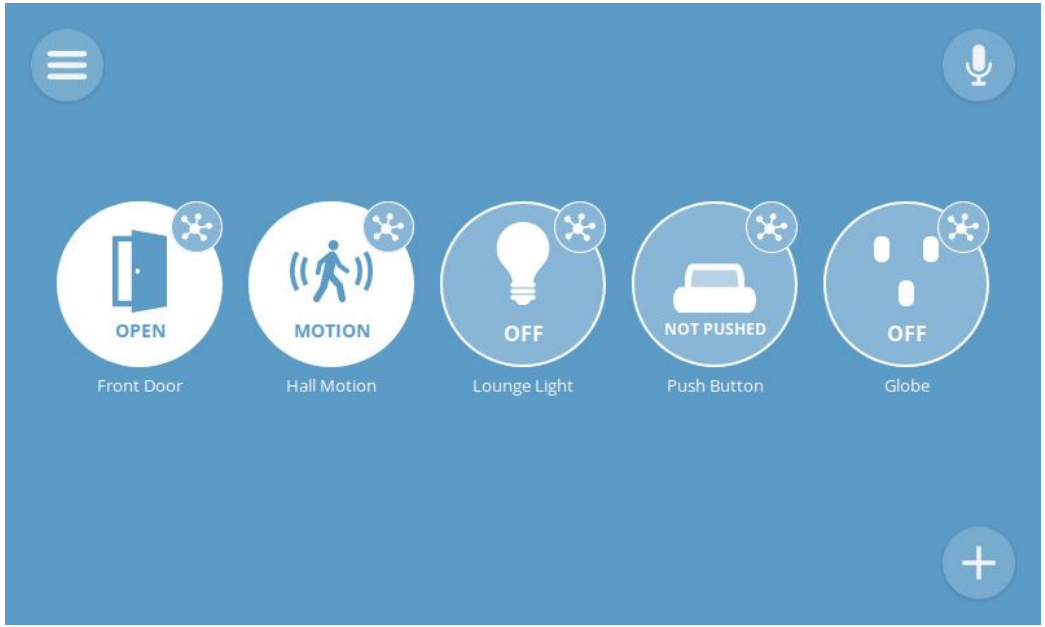
Home Security and Home Automation



Sensors / Actuators

Support for door sensors, motion sensors, pushbuttons, bulbs, plugs, and more..

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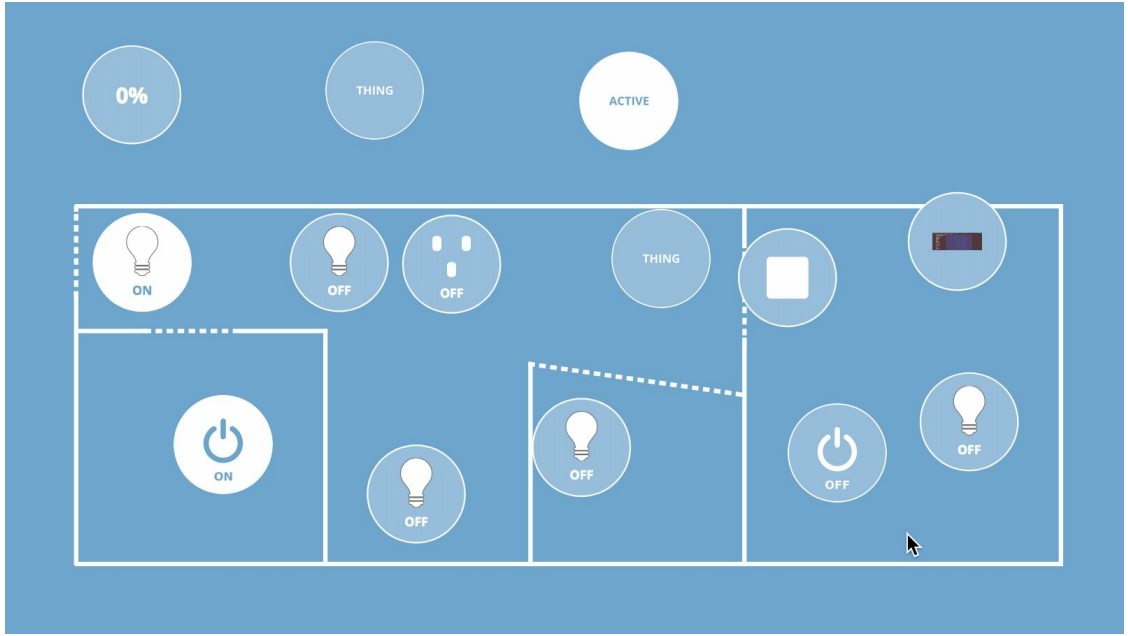
More Intuitive View Based on Thing Locations

Interactive Floorplan

View status of devices and control them directly inside the floorplan.



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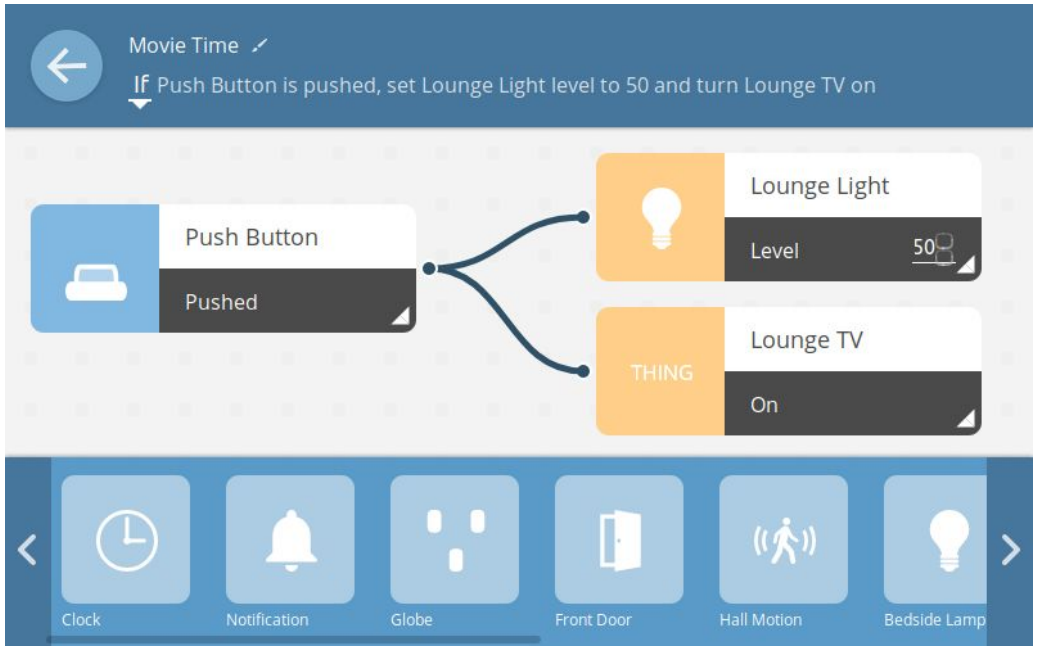
Wireless Pushbuttons:
Like “TV Remote Controls” for Your Whole Home



Push Buttons

Trigger anything with the push of a button.

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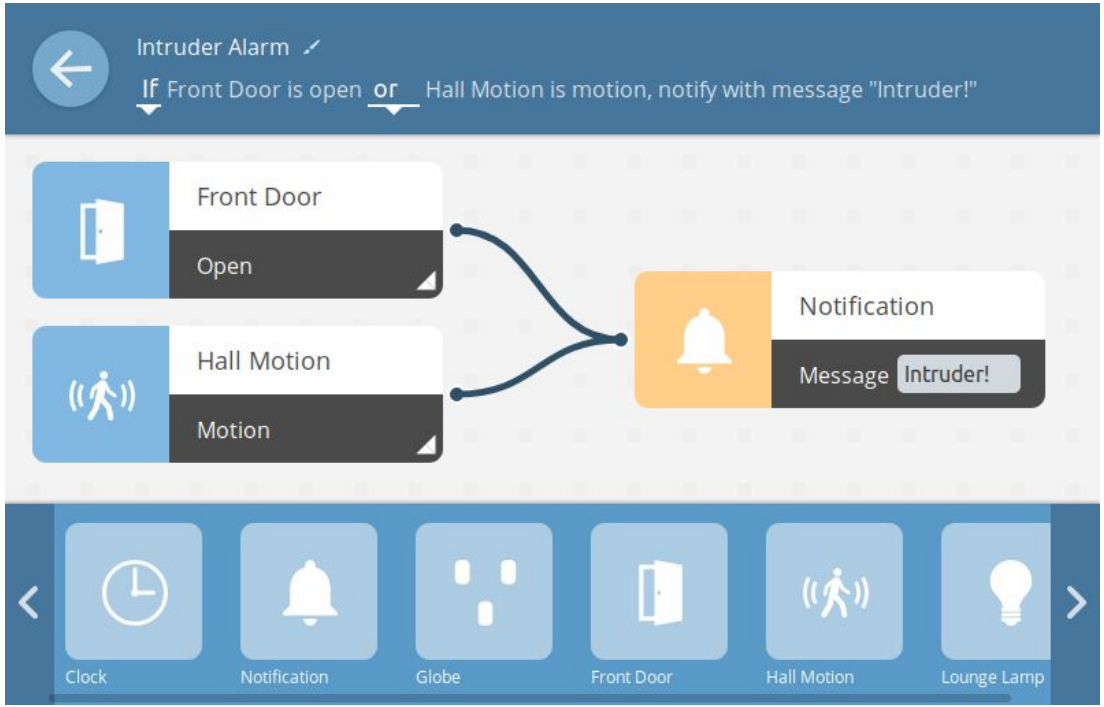
Say YES to "Allow Notifications" Dialog Box
(Because Only You Can Create Them)

Push Notifications

Create rules which trigger a push notification with a custom message.



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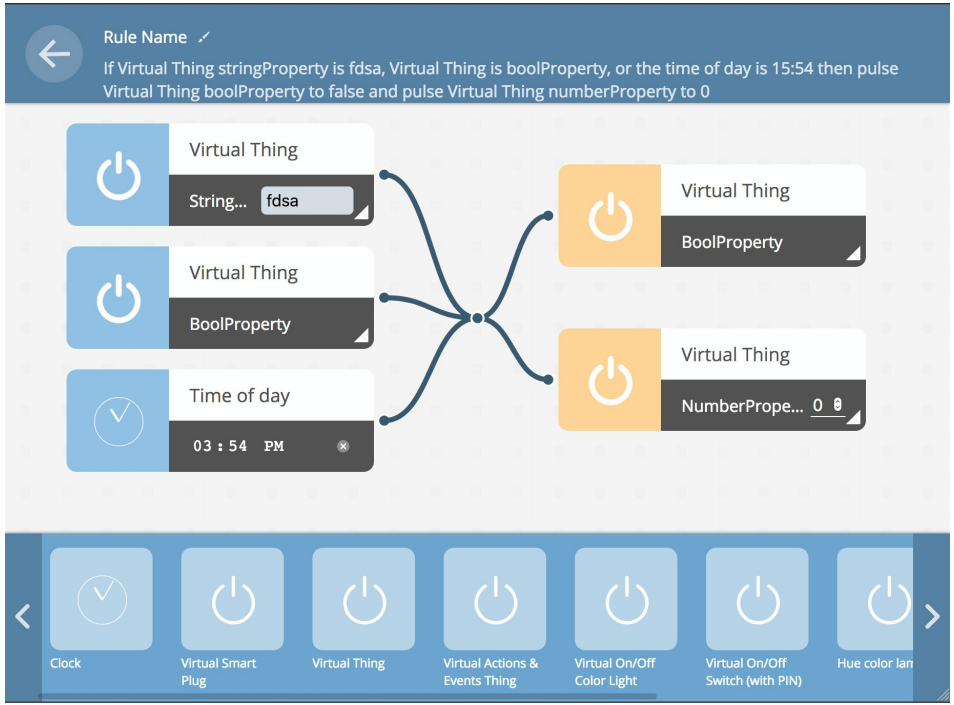
Go Crazy With Your Own Rules Logic



Advanced Rules Engine

Multiple inputs, multiple outputs.

If, while, and, or and equals operators.

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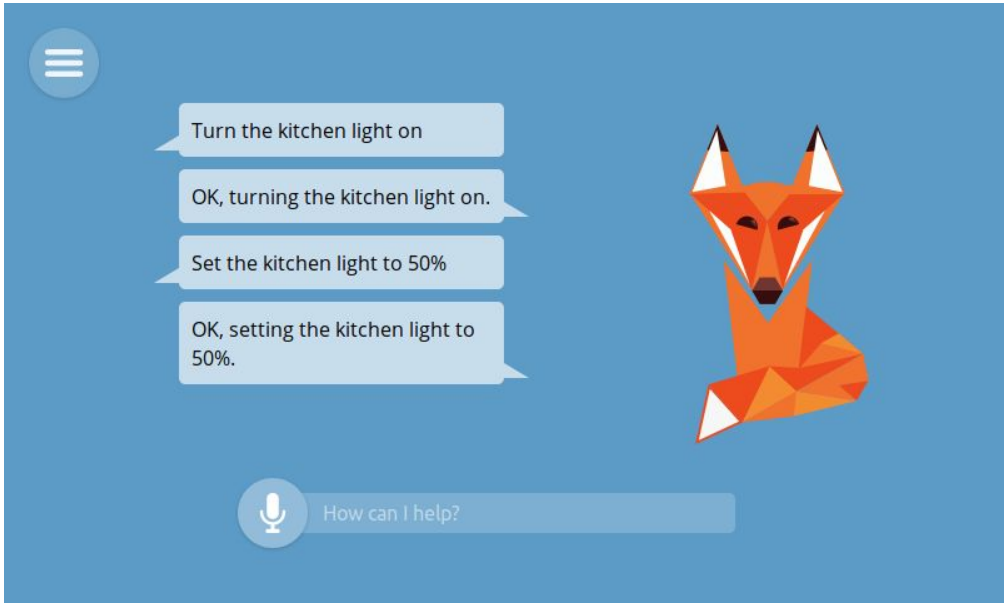
Talk or Type



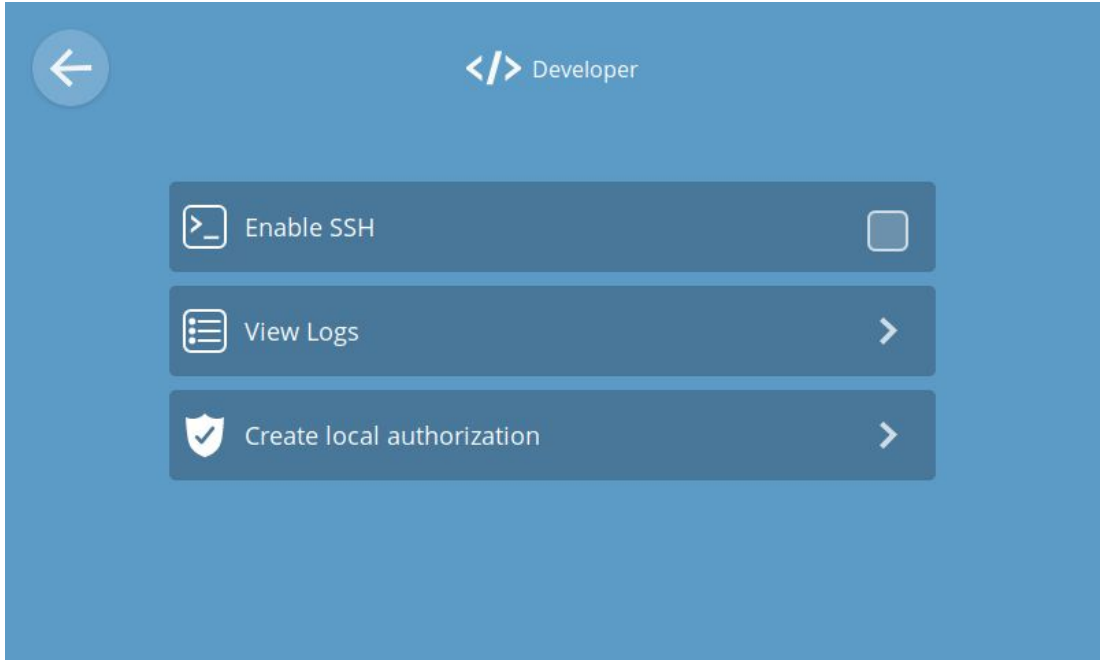
Smart Assistant

Control your home using speech and text via a chat style interface.

Secure Framework for 3rd Party Services

Developer Settings

Enable/disable SSH, view logs, and create OAuth tokens for secure web service interaction.



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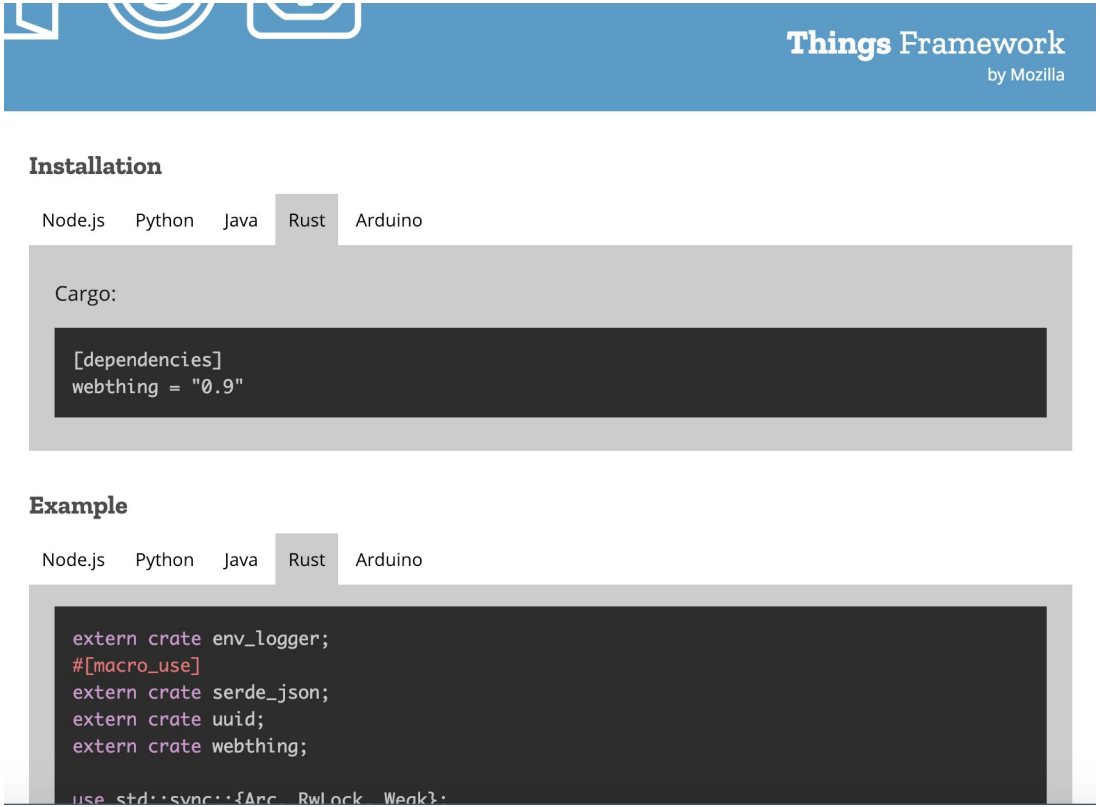
Open **webthing-*** Library Options

https://iot.mozilla.org/framework/

Node
Python
Java
Rust
Arduino
Moddable (javascript)
MicroPython
MicroBlocks
C/C++
etc.



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WoT Spec (Schemas) & Example

https://iot.mozilla.org/schemas/

Capabilities

- properties
- actions
- events

Example

```
{
  "@context": "https://iot.mozilla.org/schemas/",
  "@type": ["Light", "OnOffSwitch"],
  "name":"My Lamp",
  "description": "A web connected lamp",
  "properties": {
    "on": {
      "@type": "OnOffProperty",
      "type": "boolean",
      "description": "Whether the lamp is turned on",
      "href": "/things/lamp/properties/on"
    },
    "brightness" : {
      "@type": "BrightnessProperty",
      "type": "integer",
      "description": "The level of light from 0-100",
```

- **Capabilities**
  - OnOffSwitch
  - MultiLevelSwitch
  - BinarySensor
  - MultiLevelSensor
  - ColorControl
  - EnergyMonitor
  - SmartPlug
  - Light
  - MotionSensor
  - DoorSensor
  - TemperatureSensor
  - LeakSensor
  - PushButton
  - Camera
  - VideoCamera
- **Properties**
  - BooleanProperty
  - OnOffProperty
  - MotionProperty
  - OpenProperty
  - LeakProperty
  - PushedProperty
  - LevelProperty
  - BrightnessProperty
  - ColorProperty
  - ColorTemperatureProperty
  - InstantaneousPowerProperty
  - CurrentProperty
  - VoltageProperty
  - FrequencyProperty
  - TemperatureProperty
  - ImageProperty
  - VideoProperty
- **Actions**
  - ToggleAction
  - FadeAction
- **Events**
  - OverheatedEvent
  - PressedEvent
  - DoublePressedEvent
  - LongPressedEvent

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Add-ons: Bridge to JSON Web Thing API

ActivityPub
Broadlink
Chromecast
DateTime Adapter
Email Sender
Eufy
Flic Button
Generic Sensors
GPIO
HomeKit
Lifx
Logitech Harmony
MicroBlocks
Nanoleaf
Netatmo Wx
Philips Hue
Pimoroni Blinkt!
Pulse
Serial
Sonos
TP-Link
Twilio
Virtual Things
Voice Control
Wake-on-LAN
Web Thing
Wemo
X-10
Yeelight
Z-Wave
Zigbee
and more...

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