

Humix



COMMUNITY KICK-OFF 2015/10/29

An open-source robot framework based on
Bluemix, IoT foundation and **Watson Artificial Intelligence**

Come on, yet another robot framework ?

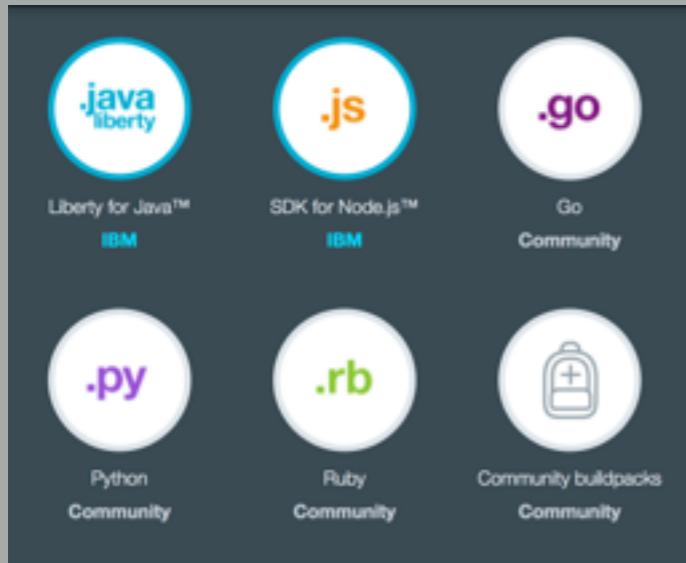
Part 1 : Overview

It all starts from a hackathon ...

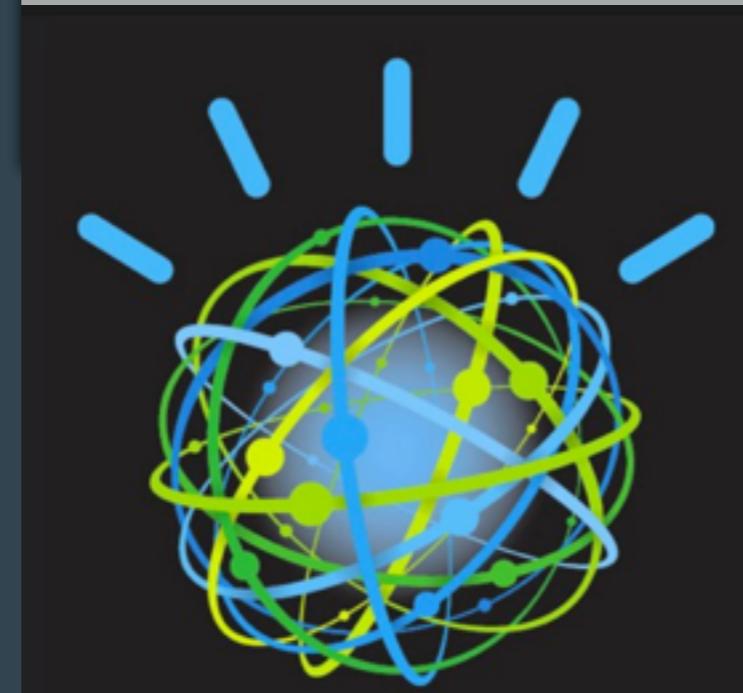
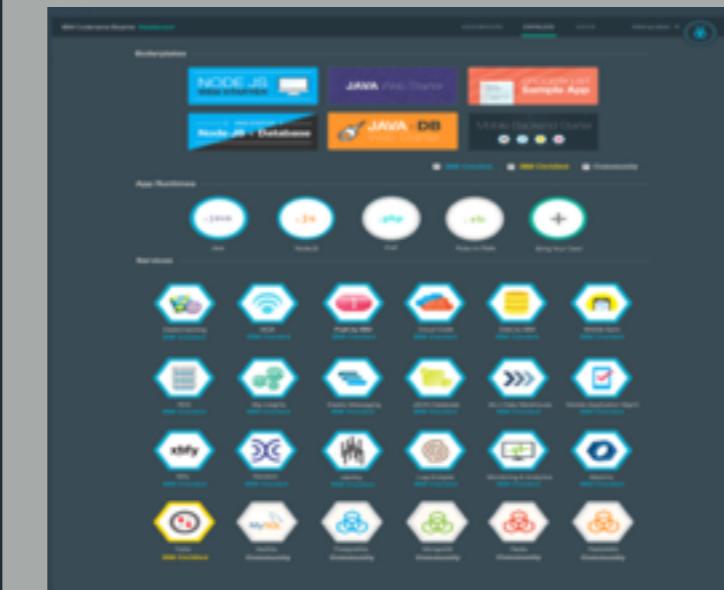


The image displays three separate screenshots of mobile application interfaces. The first screenshot on the left shows a word cloud of various hackathon-related terms such as 'Health', 'Education', 'Contests', 'Mobile', 'Government', 'Valley', 'Apps', and 'Silicon Valley'. Below this is the word 'Hackathon' in large, bold, red letters. The second screenshot in the middle is a word cloud centered around 'software programmers', with other words like 'development', 'graphic', 'hack', 'Hackathons', 'day', 'projects', 'economic', 'cases', 'codefest', 'collaborate', and 'interface' scattered around it. The third screenshot on the right features a dark background with white and light blue text. It includes the words 'CALLING ALL GREAT MINDS OF MOBILE | SOCIAL | WEB APP CODING', 'action', 'FIRST ANNUAL', 'GAMIFY', 'GREEN for GOOD', and 'HACKATHON' in large, bold, white letters. At the bottom, there is a green button with 'April 6, 2013' and a grey button with '< / >'. To the right of these buttons are icons for a beer mug and a cloud.

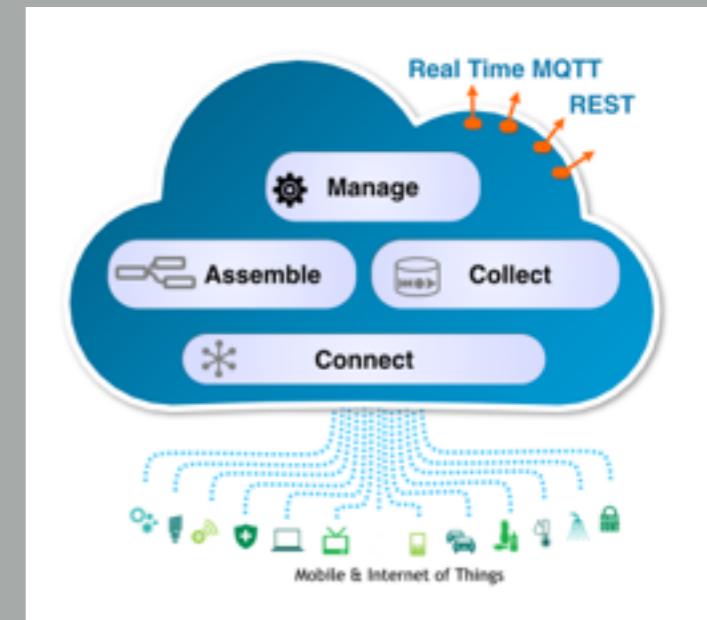
flexible platform



composable services



versatile channel

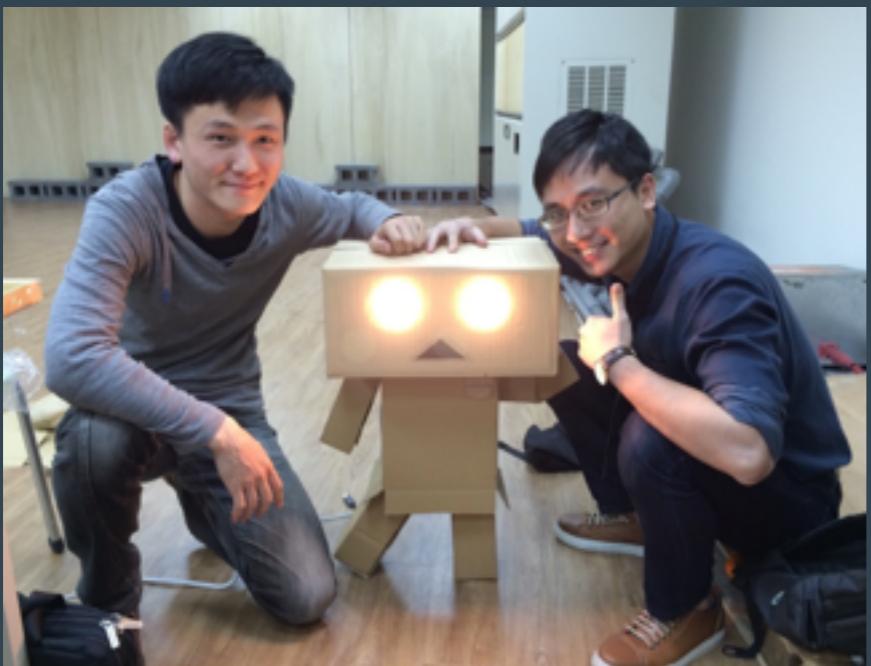
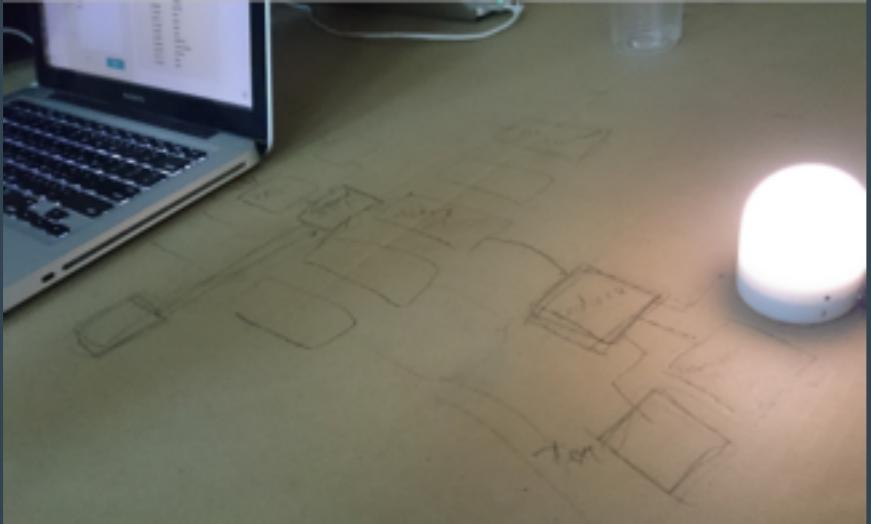


Loosely-coupled architecture with IoT Foundation



The Internet of
Things

after **8** hours coding session,
First generation of **Humix** was born



Feels
the sentiment of discussion

Listens
IRC communication

Says
basic Chinese



Humix Omega

Humix Alpha

Humix Beta

Humix Delta



<https://www.facebook.com/humixomega>

Humix Omega Features

Communication Channel

- IRC (input/output)
- Facebook messenger(input/output). This is a new node we added on NodeRed
- Speech-to-Text (input) . Text-to-Speech (output). Support English and Chinese today.

Sensors

- Report current temperature
- Report current humidity
- shadow mode : Heart-rate sync with owner
- wake up or sleep triggered by NFC

Instinctive Behavior

- Close eye with the environment is too bright
- The eye will enable idle mode when no activity

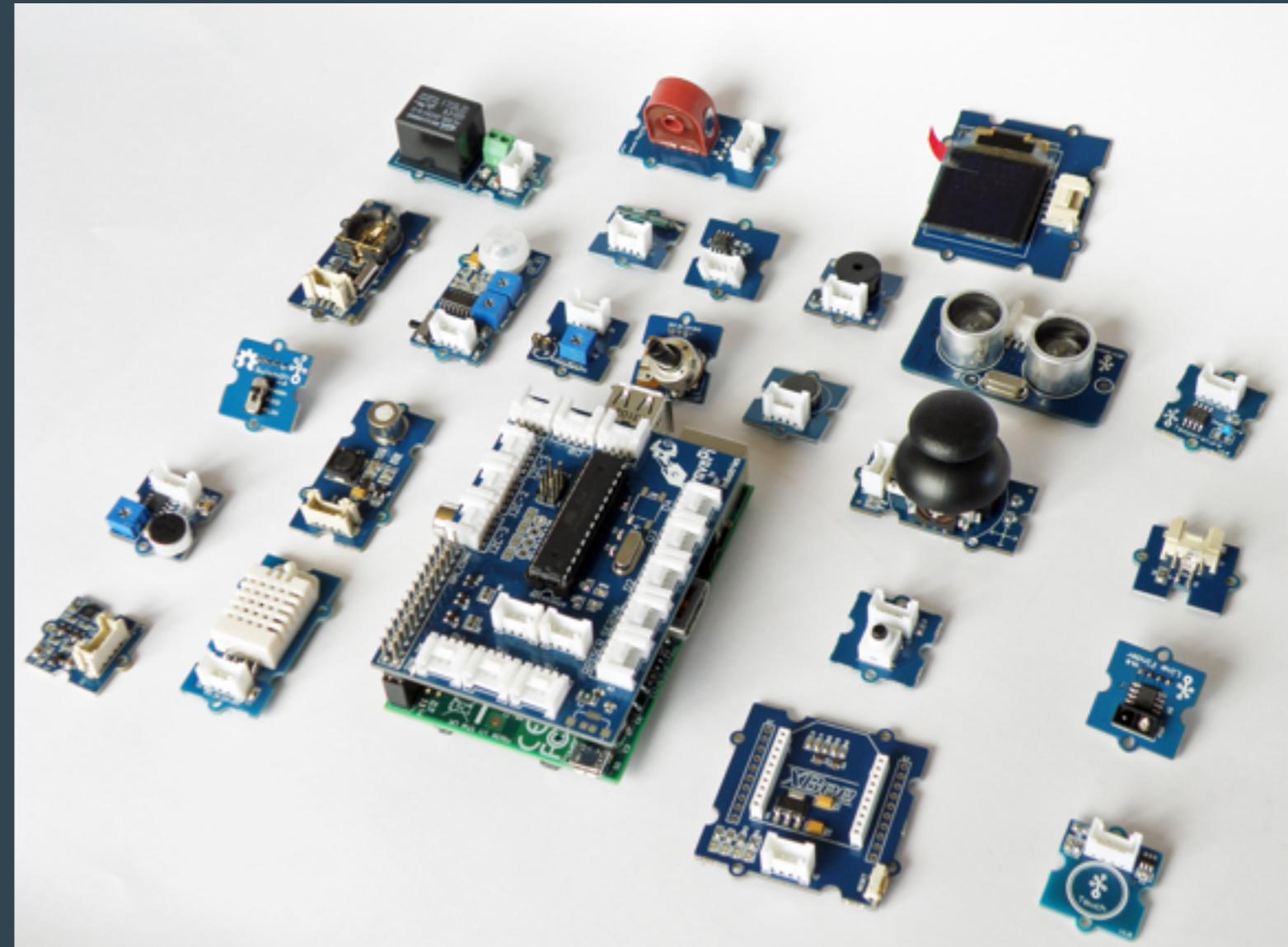
Cognitive Computing

- Monitor the message received from Facebook (comments or messenger), turn eye color to green if received positive message, otherwise turn the eye color to blue
- How old am I : when asked for age from messenger, humix will take a picture and report the estimated age of the people in the picture

When Meets

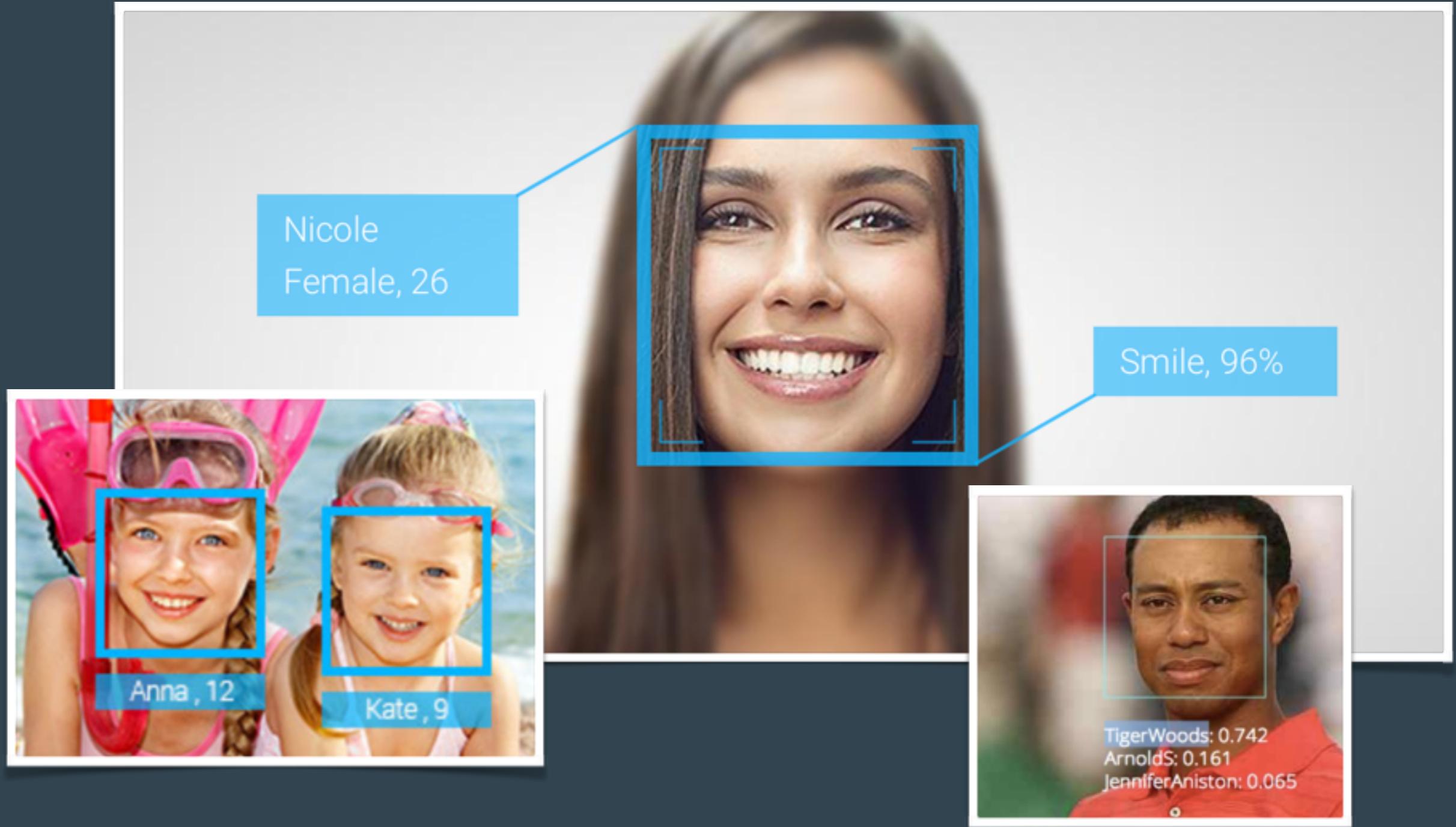


Thousands of API/Services



Hundreds of Sensors

API Examples



<http://blog.mashape.com/list-of-10-face-detection-recognition-apis/>

API Examples

Watson

Build cognitive apps
that help enhance,
scale, and accelerate
human expertise



AlchemyAPI
IBM



Concept Expansion
IBM BETA



Concept Insights
IBM



Dialog
IBM



Language Translation
IBM



Natural Language
Classifier
IBM



Personality Insights
IBM



Question and Answer
IBM BETA



Relationship Extraction
IBM BETA



Retrieve and Rank
IBM



Speech To Text
IBM



Text to Speech
IBM



Tradeoff Analytics
IBM



Visual Recognition
IBM BETA



Cognitive
Commerce™
Third Party



Cognitive Graph
Third Party



Cognitive Insights™
Third Party

API Examples

Microsoft Project Oxford

Services Demo Documentation SDKs Blog Community

Demo

Check out Microsoft Project Oxford in action

The screenshot displays the Microsoft Project Oxford demo interface. At the top, there's a navigation bar with the Microsoft logo, "Project Oxford", and links for "Services", "Demo", "Documentation", "SDKs", "Blog", and "Community". Below the navigation is a green header bar with the title "Demo" and the subtitle "Check out Microsoft Project Oxford in action". To the right of the subtitle is an icon depicting three clouds, each supporting a small monitor displaying a different application window. The main content area is divided into seven sections, each featuring a small icon and a brief description:

- Face Detection**: Shows two children's faces with pink bounding boxes. Description: Try face detection demo by uploading a local image, or providing an image URL.
- Face Verification**: Shows two men's faces with blue bounding boxes. Description: Upload two local images with different illumination or different face view angles, or provide the image URLs, you can get the comparing and identifying results.
- Speech to Text**: Shows a man wearing a headset and using a computer. Description: Transcribe speeches from sample audio files or streaming audio into the written word.
- Text to Speech**: Shows a blue waveform. Description: Use an existing file or enter your text to try the demo to convert written text into spoken words.
- Vision Feature Analysis**: Shows a landscape image of a beach and sky. Description: Adult Content : False Categories : sky,cloud
- Optical Character Recognition**: Shows a person running and a quote: "IF WE DID ALL THE THINGS WE ARE CAPABLE OF DOING, WE WOULD LITERALLY ASTOUND OURSELVES." Description: This section shows how the API can extract text from images.
- Vision Thumbnail**: Shows a white dog and several smaller thumbnail images of the same dog. Description: This section shows how the API can generate thumbnails from larger images.

API Examples

wit.ai

GETTING STARTED DOCS COMMUNITY BLOG

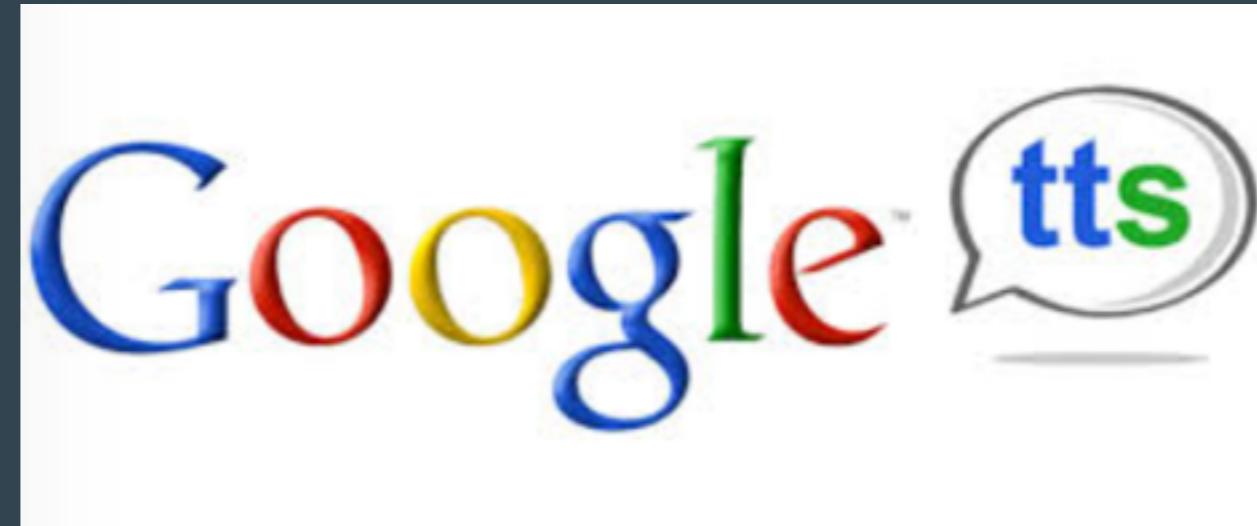
Natural Language for Developers

Mobile apps Home automation Wearable devices Robots Messenger

Easily create text or voice based agents that humans can chat with on your preferred messaging platform.

Login with GitHub or see how it works

This screenshot shows the Wit.ai homepage, which focuses on natural language processing for developers. It features a navigation bar with links to Getting Started, Docs, Community, and Blog. Below the header is a section titled "Natural Language for Developers" with icons representing various applications like mobile apps, home automation, and robots. A call-to-action button for "Login with GitHub" is present, along with a link to "see how it works".



Speech APIs
BETA

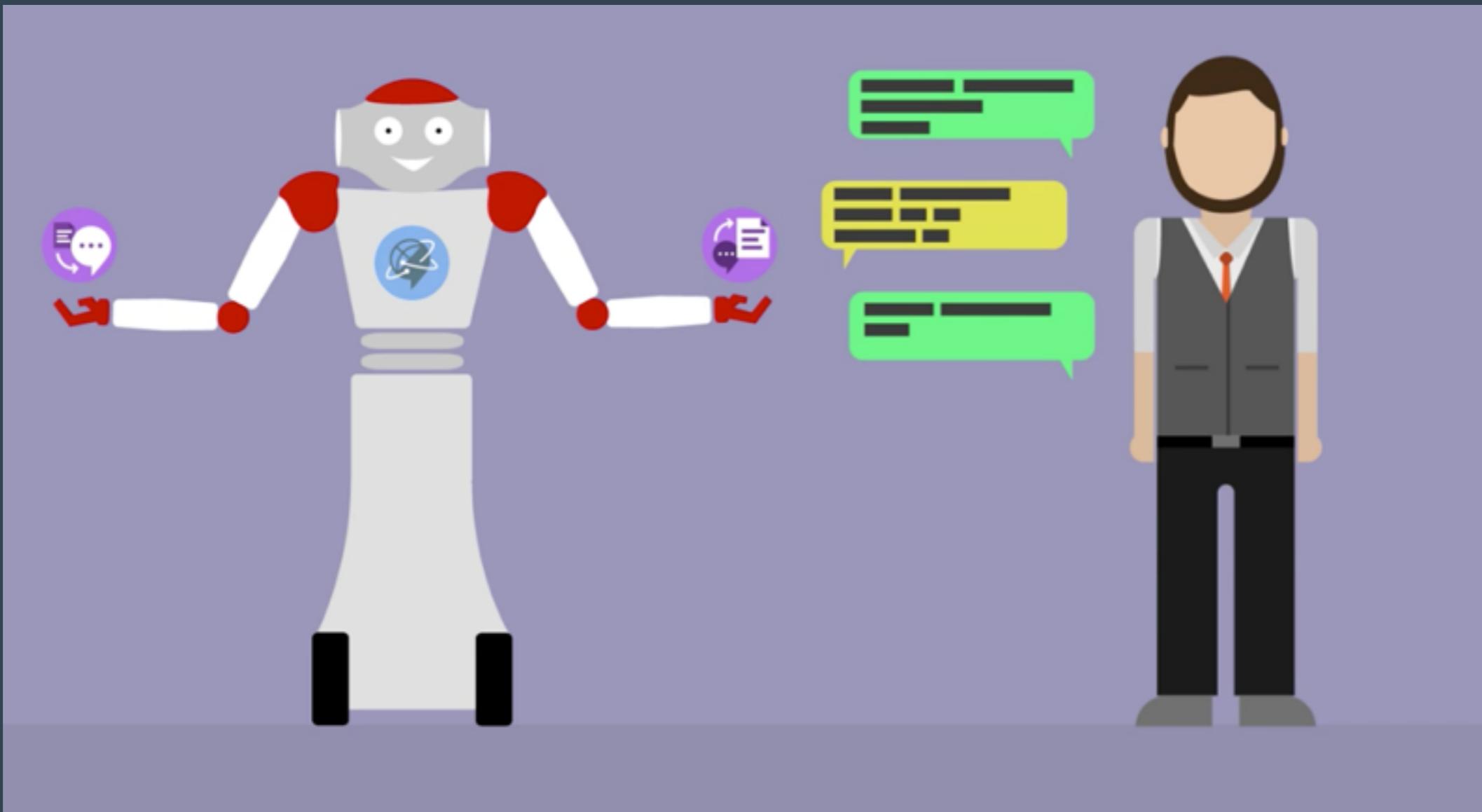
This screenshot shows a component of the Wit.ai interface related to speech APIs. It features a large green icon with a microphone and a document, with arrows indicating a speech-to-text process. Below the icon, the text "Speech APIs" and "BETA" is displayed.

Language Understanding Intelligent Service (LUIS)
BETA

This screenshot shows a component of the Wit.ai interface related to LUIS (Language Understanding Intelligent Service). It features a large green icon with a document and a curly brace, representing language understanding. Below the icon, the text "Language Understanding Intelligent Service (LUIS)" and "BETA" is displayed.



API Examples



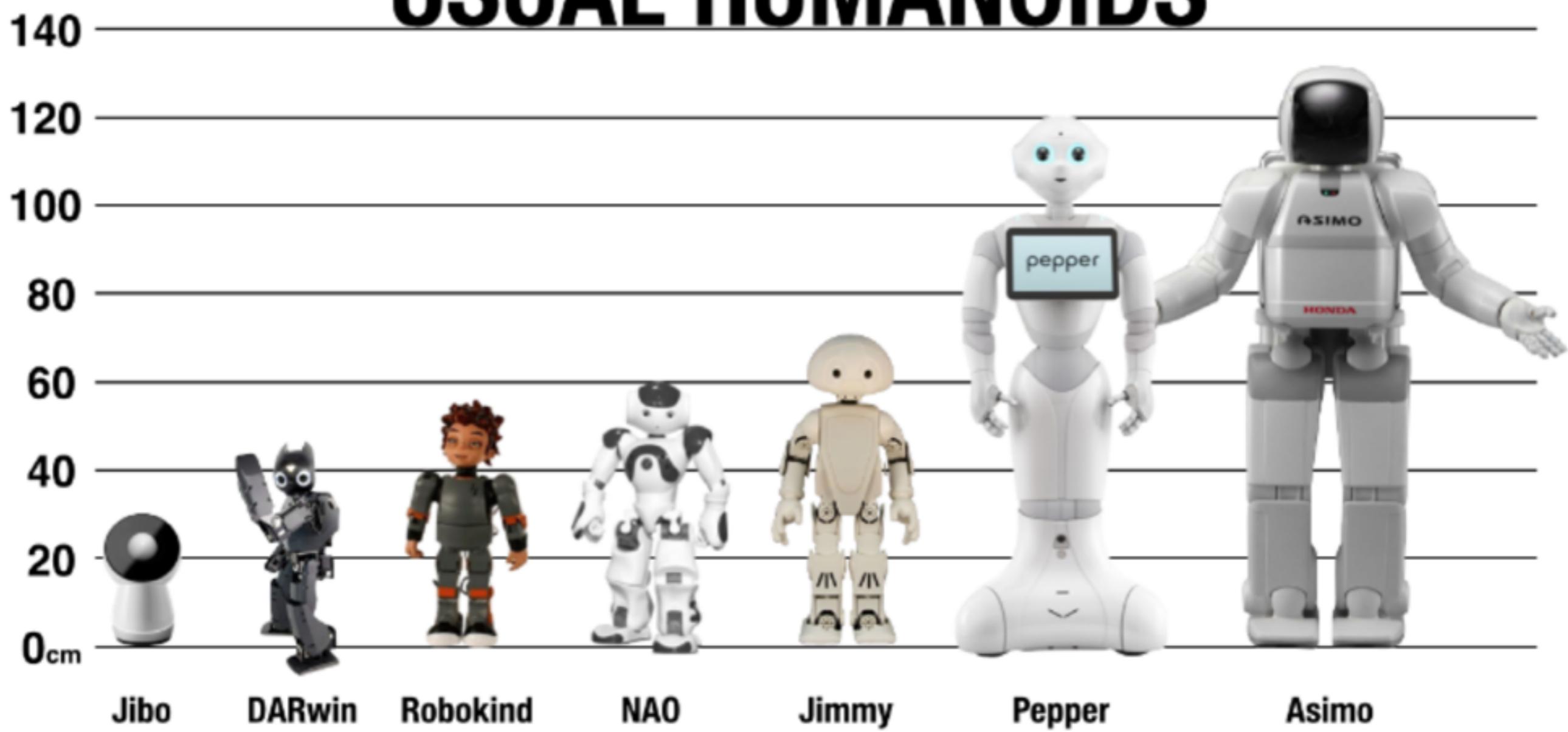
[http://www.ibm.com/smarterplanet/us/en/ibmwatson/developercloud/dialog.html?
cm_mc_uid=09618670703314348724626&cm_mc_sid_50200000=1446093870](http://www.ibm.com/smarterplanet/us/en/ibmwatson/developercloud/dialog.html?cm_mc_uid=09618670703314348724626&cm_mc_sid_50200000=1446093870)

How to reuse ?

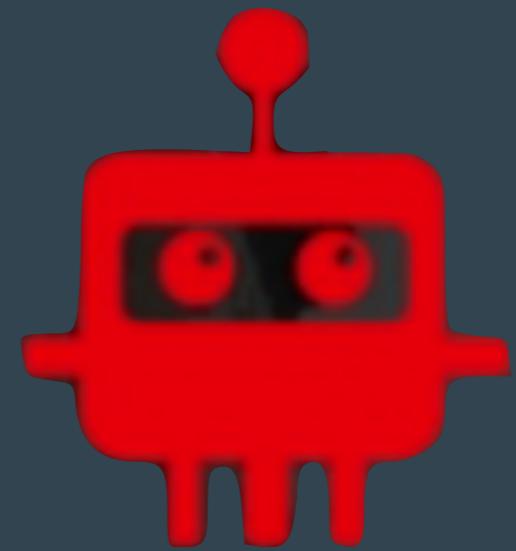
What are the minimal steps ?

What is YOUR robot ?

THE USUAL HUMANOIDS



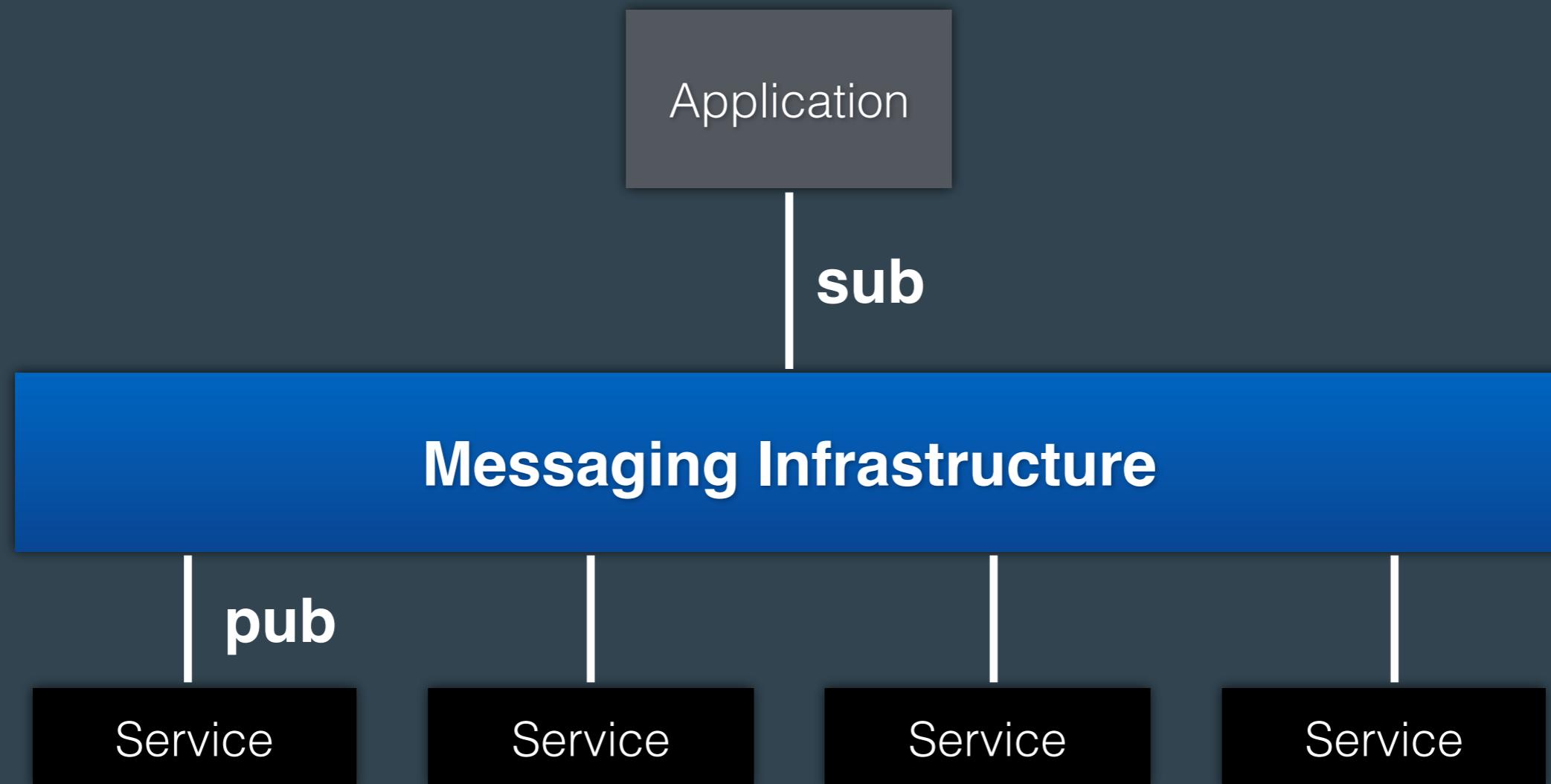
Part 2 : Humix Deep Dive



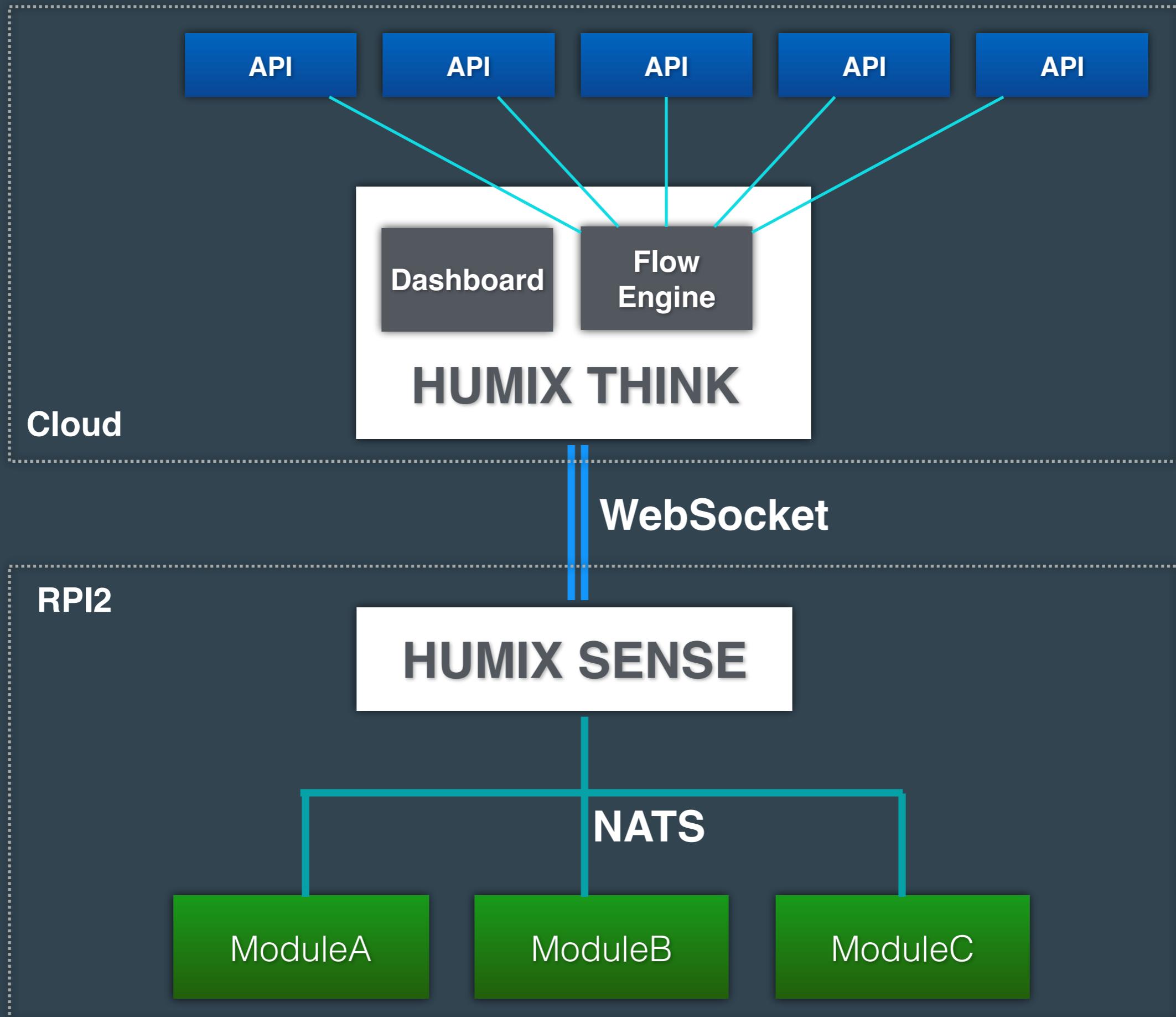
Humix In Action

MicroService Architecture

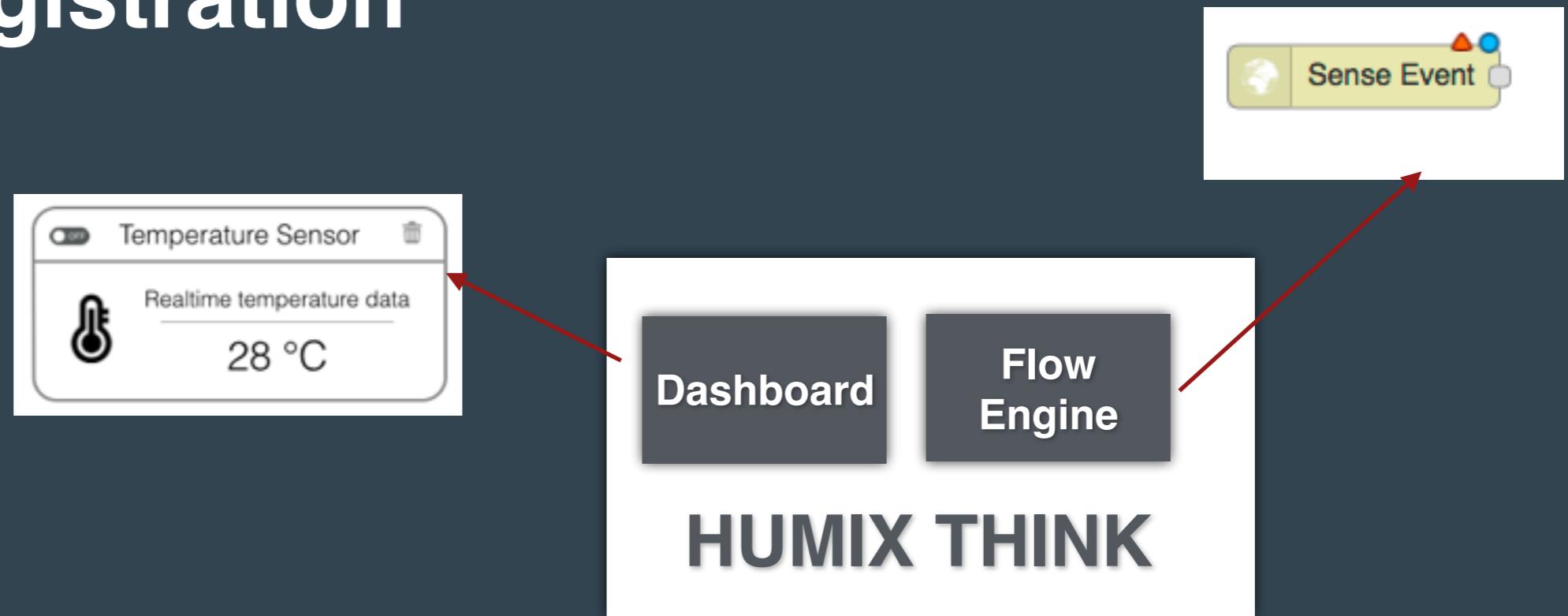
“An approach to developing a single application as a suite of small, independently deployable services”



Humix Architecture

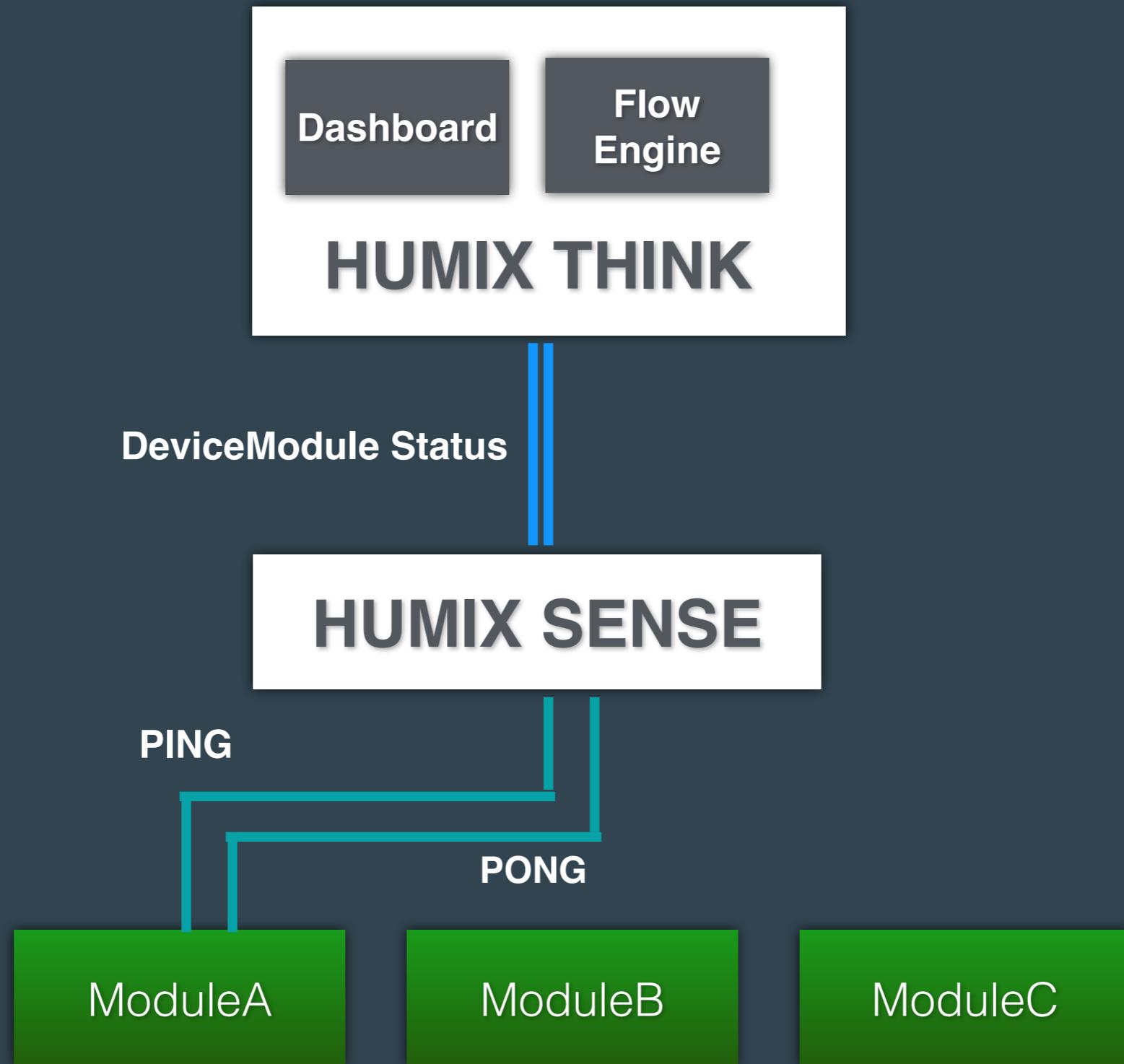


Module Registration

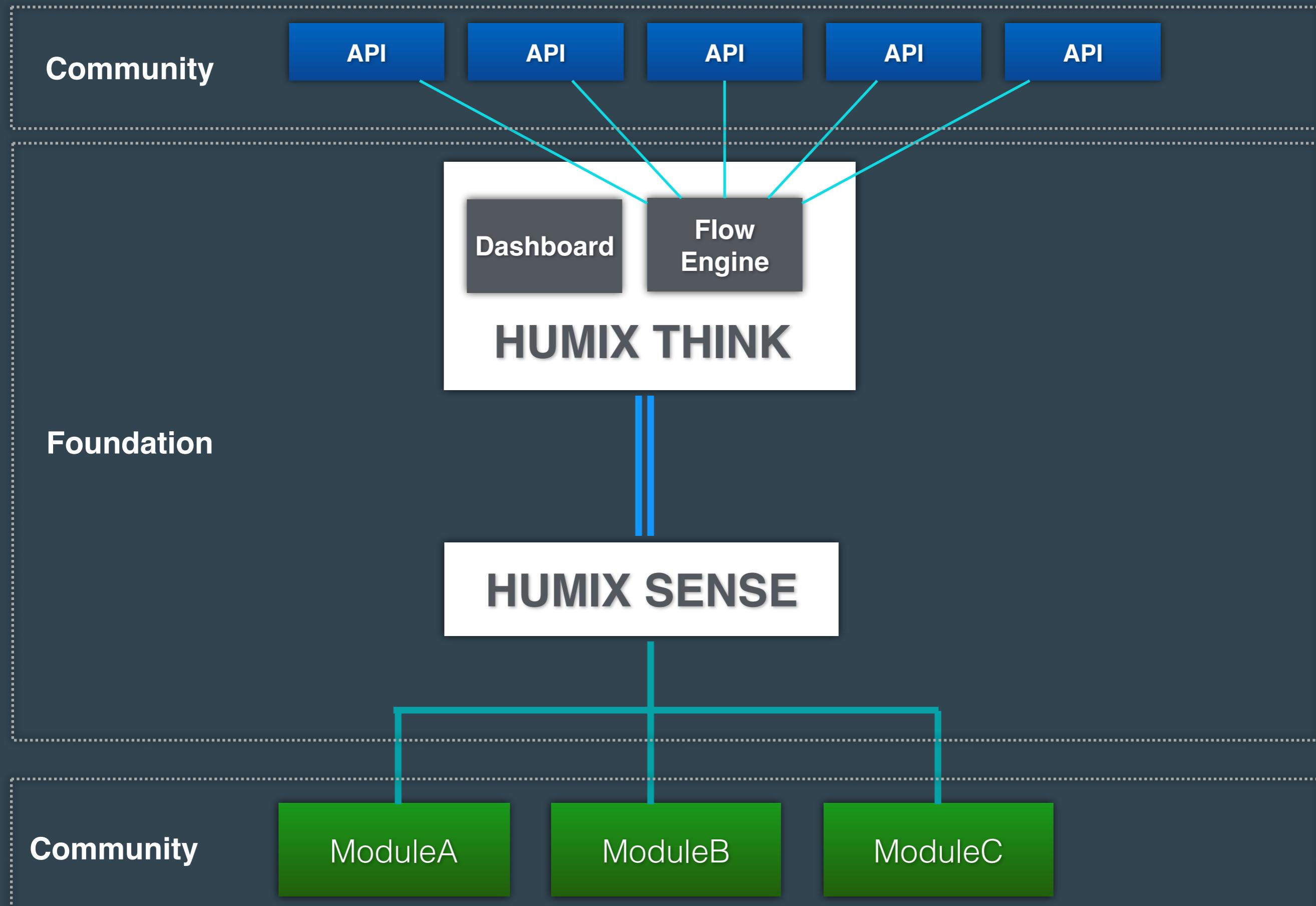


```
{  
  moduleName: 'Temperature'  
  commands: ['cmd1','cmd2'],  
  events: ['event1','event2']  
}
```

Module Status Check



Humix Architecture



Programming Model

1. Require Humix-Sense and provide module config

```
var HumixSense = require('node-humix-sense')

var config = {
  "moduleName": "neopixel",
  "commands" : ["feel", "mode", "color"],
  "events" : [],
  "debug": true
}

var humix = new HumixSense(config);
```

Programming Model

2. Connect to “Think”

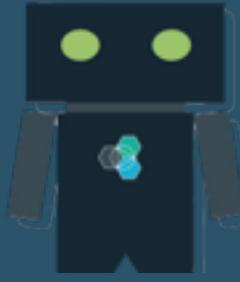
```
humix.on('connection', function(humixSensorModule){  
    hsm = humixSensorModule;  
  
    // handle your event and command here  
  
};  
);
```

Programming Model

3. Process “commands”, send “events” on device

```
hsm.on('command1', function(command){  
});  
  
hsm.event('event1', event);
```

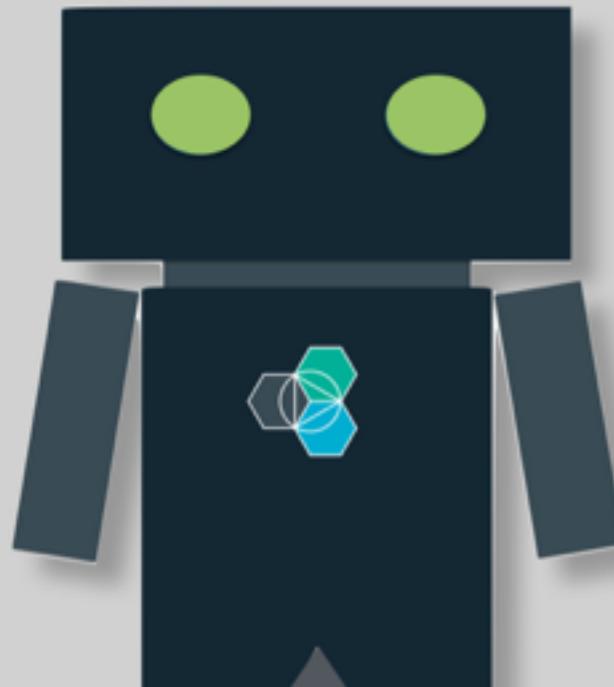
Humix NG UI



NG HUMIX

Homemade Robot

Hello World! Build your own Humix!

[Signup now!](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque felis ipsum, facilisis at tincidunt vel, tincidunt ultrices magna. Cras tristique, nisl sed scelerisque dignissim, sem lorem venenatis purus, id fermentum ipsum dui sodales nisl.



NG HUMIX

Homemade Robot

Hello

ix!

User ID

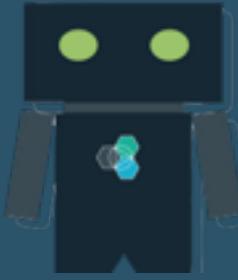
humix@ibm.com

Password

[Cancel](#)

[Login](#)

Et, consectetur
que felis ipsum,
facilisis at tincidunt vel, tincidunt ultrices
magna. Cras tristique, nisl sed scelerisque
dignissim, sem lorem venenatis purus, id
fermentum ipsum dui sodales nisl.



NG HUMIX

Homemade Robot

[+ Add a Member](#)

You haven't added any robot yet.



NG HUMIX

Homemade Robot

[+ Add a Member](#)

ID

Humix - alpha



Thumbnail

 Default Custom[upload](#)[Cancel](#)[Add](#)



NG HUMIX

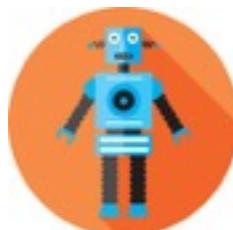
Homemade Robot

[+ Add a Member](#)

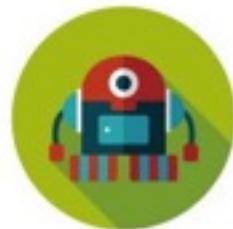
Member ID	Status	Modules	Actions
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**Humix - Alpha**● Active

5

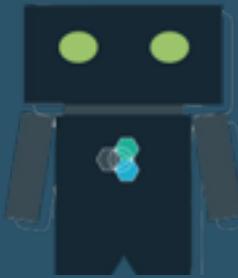
[more](#)**Humix - Beta**● Active

2

[more](#)**Humix - Omega**● Sleeping

0

[more](#)



NG HUMIX

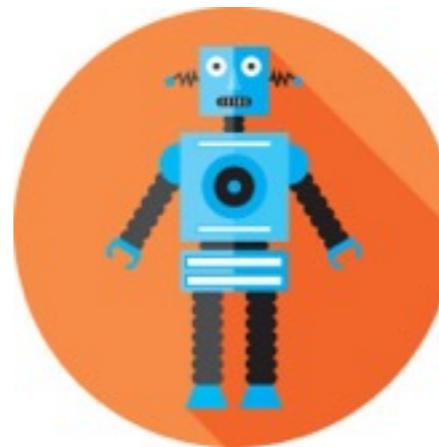
Homemade Robot

[+ Add a Member](#)**Humix - Alpha**

Active



Greeting

**Humix - Beta**

Active



Greeting

**Humix - Omega**

Sleeping



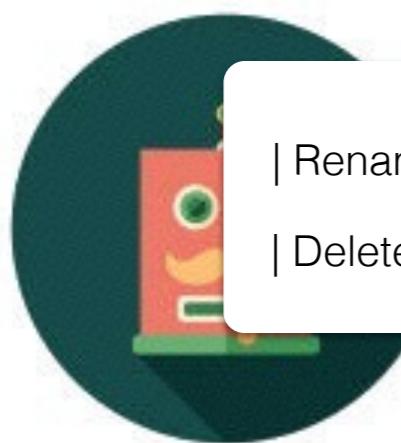
Diagnose



NG HUMIX

Homemade Robot

+ Add a Member



Humix - Alpha

● Active

WiFi Greeting

- | Rename Robot
- | Delete Robot



Humix - Beta

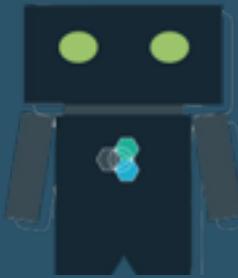
● Active

WiFi Greeting

Humix - Omega

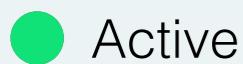
● Sleeping

WiFi Diagnose



NG HUMIX

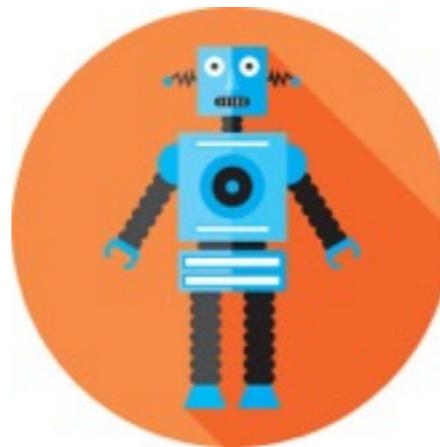
Homemade Robot

[+ Add a Member](#)**Humix - Alpha**

Active



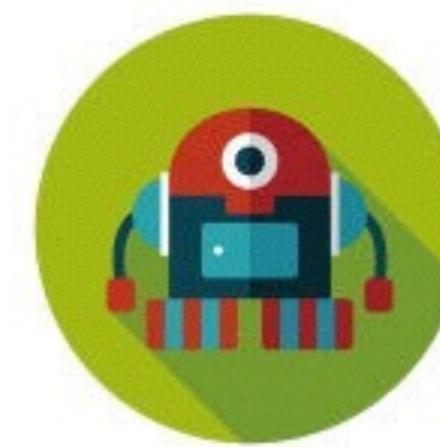
Greeting

**Humix - Beta**

Active



Greeting

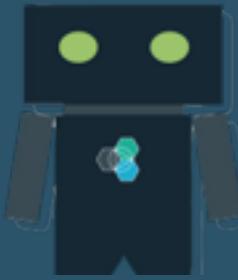
**Humix - Omega**

Sleeping



Diagnose

Make your robot say "hello!"



NG HUMIX

Homemade Robot

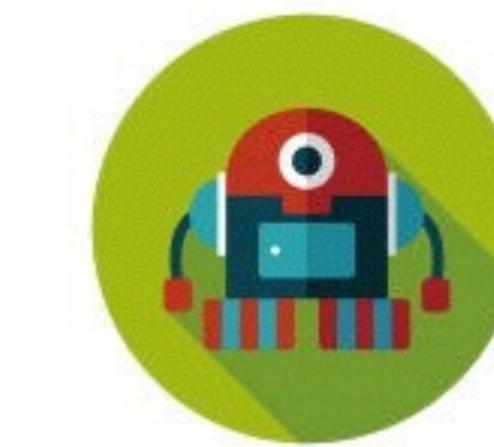
+ Add a Member



Humix - Alpha



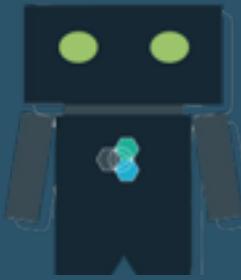
Humix - Beta



Humix - Omega

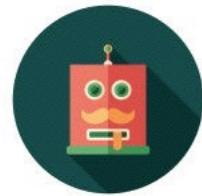


Run diagnose on
connectivity problem



NG HUMIX

Homemade Robot



Humix - Alpha

Checkout other robots



You haven't registered any modules yet.



NG HUMIX

Homemade Robot



Humix - Alpha

Checkout other robots



Registered Modules

OFF Temperature Sensor

Realtime temperature data
28 °C

OFF Camera

This module controls the camera on humix sense.

OFF Eye Control

This module controls the eyes on your humix sense.

OFF Heartbeat

Realtime heartbeat rate
100 /min

Project Repositories

node-humix-sense

<https://github.com/project-humix/node-humix-sense>

humix-ng

<https://github.com/project-humix/humix-ng>

humix-tts-module

<https://github.com/project-humix/humix-tts-module.git>

humix-neopixel-module

<https://github.com/project-humix/humix-neopixel-module.git>

Part 3 : Humix Next

Most **desirable** features are ...

Next Step

1. Monthly Meetup with specific Robot skills and lightning sessions
2. More humix modules !
3. Make humix Fly

Referenced Projects

<http://nats.io>

Message Bus

<http://nodered.org>

Flow Editor Bus

<http://cmusphinx.sourceforge.net>

Voice Recognition

<http://tts.itri.org.tw/index.php>

Text-To-Speech Service



<https://www.facebook.com/humixomega>

