

SNP –Tech Wednesday - Class #5 – 2018Sept26

PI Camera and Visual recognition – bot part #1



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IBM SPEED

Think. Create. Win.

https://en.wikipedia.org/wiki/Six_Nations_Polytechnic



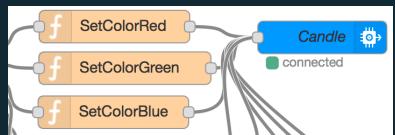
Goal

We will use a camera to analyze the picture of objects and people.

For example when we show the camera a sign with the name of a color the candle should switch to the color e.g blue.

A another exercise is to create an alert when an Adult person is detected

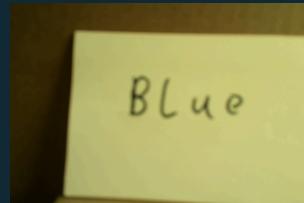
Overall Scenarios



Message



alert



Demo – object , Text and People Detection

Grade10



System thinks this picture contains a pale yellow color robot.

default

Class	Score	Type Hierarchy
robot	0.813	
android	0.664	
plush (fabric for toys)	0.5	/fabric/plush (fabric for toys)
fabric	0.5	
mechanism	0.801	
pale yellow color	0.736	

TAKE PICTURE

CLASSIFY OBJECT

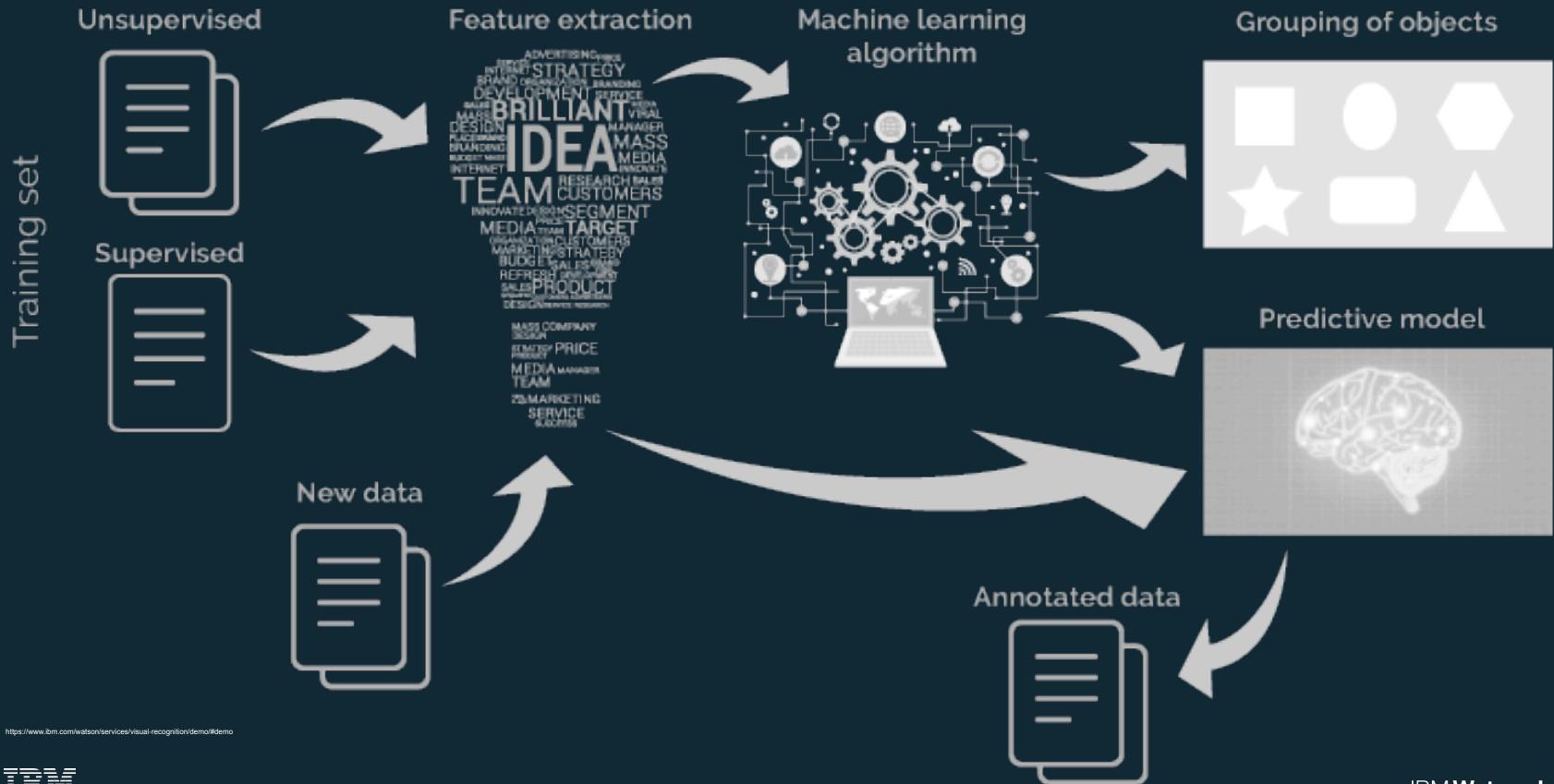
DETECT PEOPLE

REFRESH

DETECT TEXT



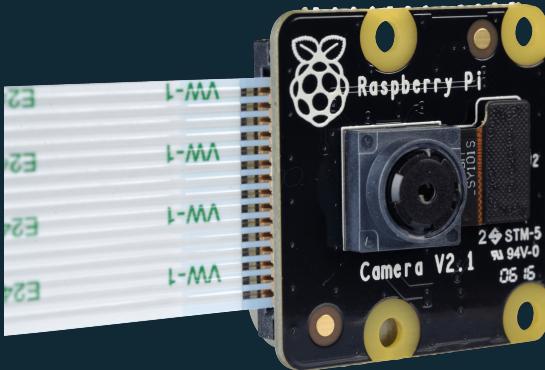
Machine Learning



<https://www.ibm.com/watson/services/visual-recognition/demo/#demo>



Pi Camera Installation



To Do's

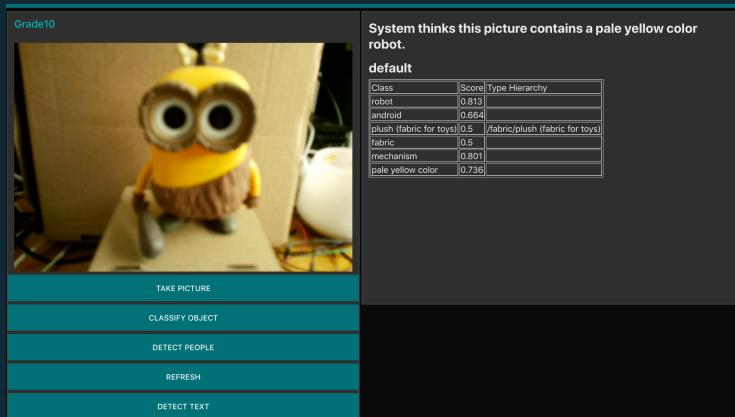
- Add the Pi Camera to our Pi
- Enable the pi camera via sudo raspi-config
- Update our pi ... should be automatic
- Import the Node-RED code form github in to your Node-RED space
 - Your node-red space is <http://snp???.mybluemix.net/red>
 - Delete old node-red flows
 - <https://github.com/SixNationsPolytechnic/2018-05-PiCamera/tree/master/node-red>
 - Make sure to deploy your code
 - **Important** Adjust the DeviceID with your Group Number
 - Important Import the APIKey
- Test and Code
- Import mode code from github , Object ,text and people detection

Task – take a picture and detect the object

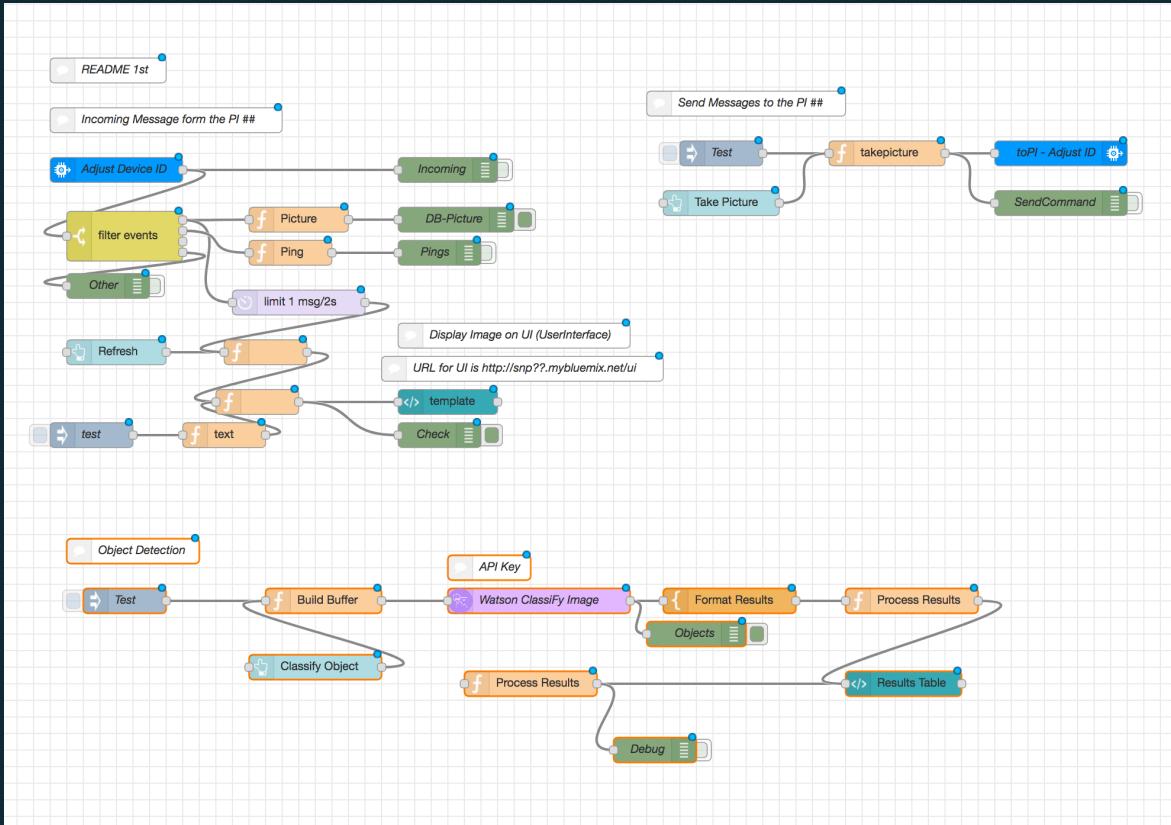
Test if you can take a picture via the Node-RED UI

Use url : <http://snp???.mybluemix.net/ui> - node ?? Is your group number

Import the Node-Red flow for Detecting objects



Node-RED should look like below after importing acamera.json and object.json



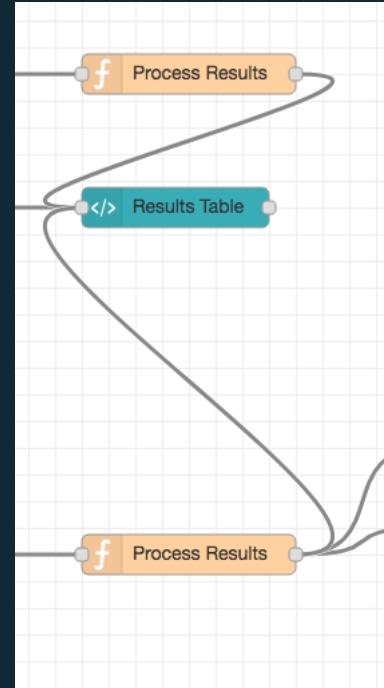
Text Detection flow

Import the testreco.json from github

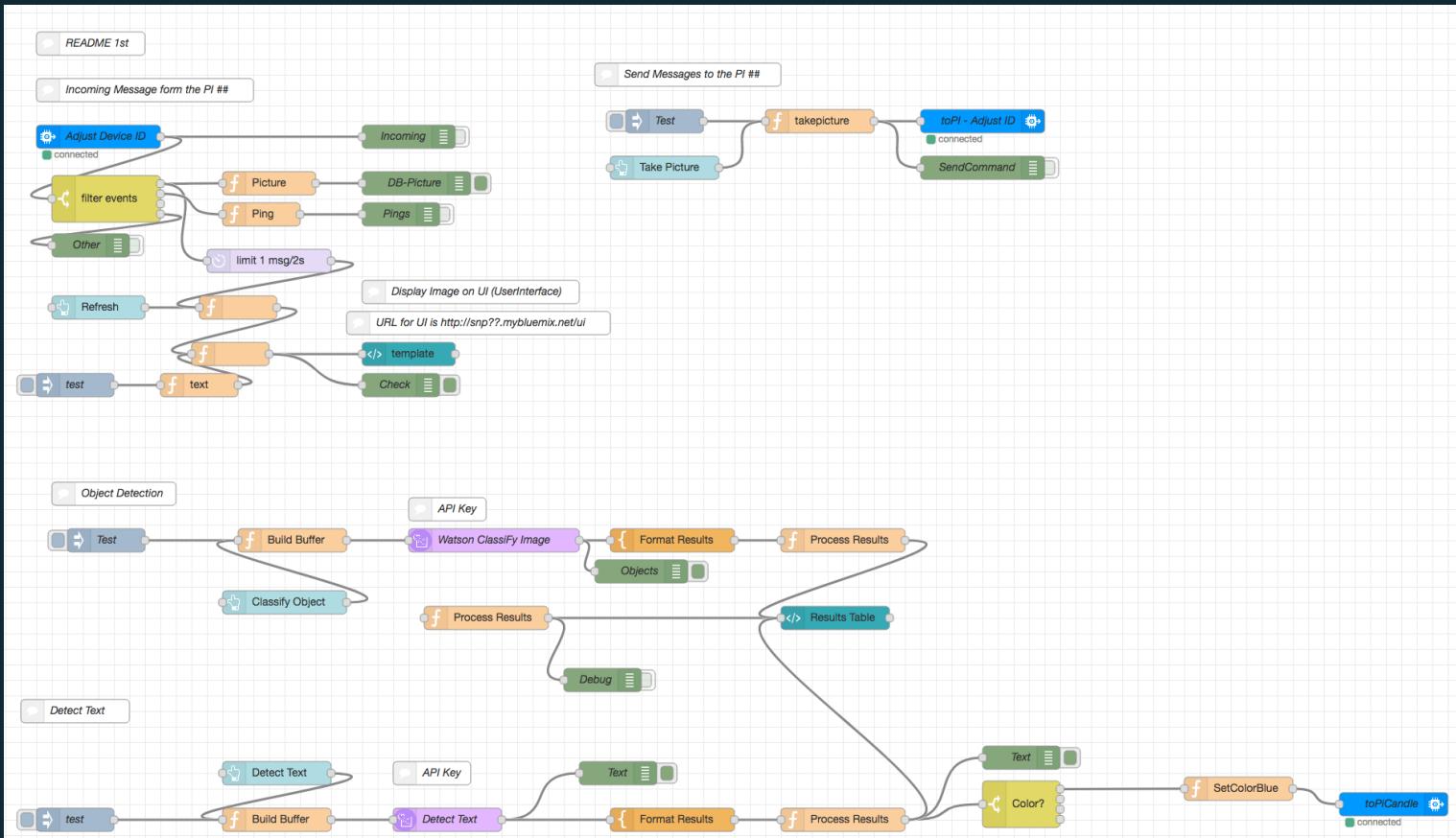
Make sure to deploy you code

Make sure you connect

the Process Results to the Result Table



Text Detection Node-RED flow



Test the Text Detection via the ui url <http://snp???.mybluemix.net/ui>

The screenshot shows a mobile application interface. At the top left, it says "Grade10". Below that is a camera viewfinder showing a yellow sticky note with the word "Blue" written on it. To the right of the camera view is a table titled "Text = blue" with two rows: "words" and "blue". Under "words" is a column labeled "score" with the value "0.6255". At the bottom of the screen are five teal-colored buttons with white text: "TAKE PICTURE", "CLASSIFY OBJECT", "DETECT PEOPLE", "REFRESH", and "DETECT TEXT".

Add code to change
the Candle Color based
On what you write on
the paper

See candle.json for examples



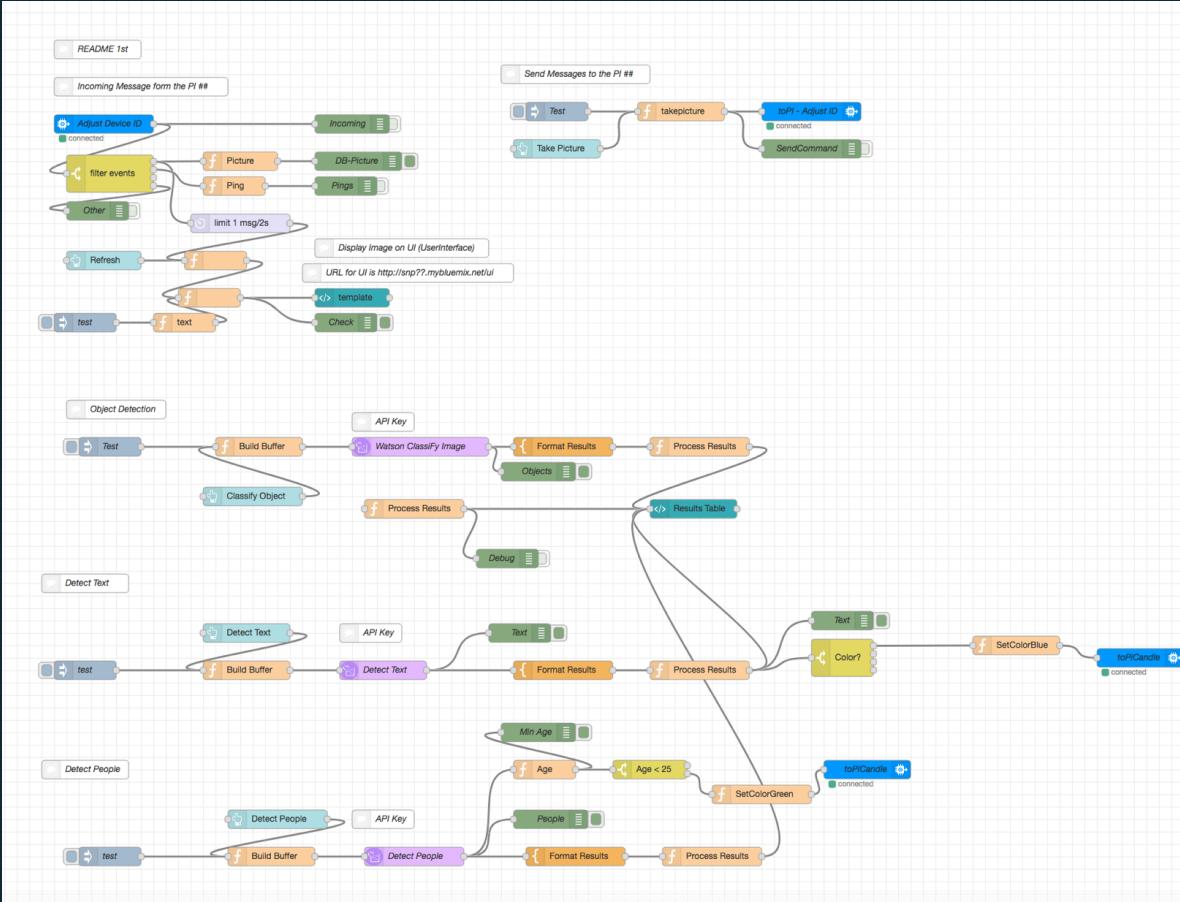
People Detection

Import the people.json form github

Connect the process result to the result table

Deploy the code and test (use the /ui url)

For the People detection Node-RED flow should look like



People Detection test result

Grade10



Gender	Age Range	Location
FEMALE (0.6227911)	52-57 (0.5574733)	222,103 180X211

TAKE PICTURE

CLASSIFY OBJECT

DETECT PEOPLE

REFRESH

DETECT TEXT

Add some alerting based on the Age for example

Reference

Base install

<https://github.com/markusvankempen/snp-pi-installation>

Presentation and Node-red Flow

<https://github.com/SixNationsPolytechnic/2018-05-PiCamera>

Video:

<https://www.youtube.com/watch?v=wH4jxGaxbQk>



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