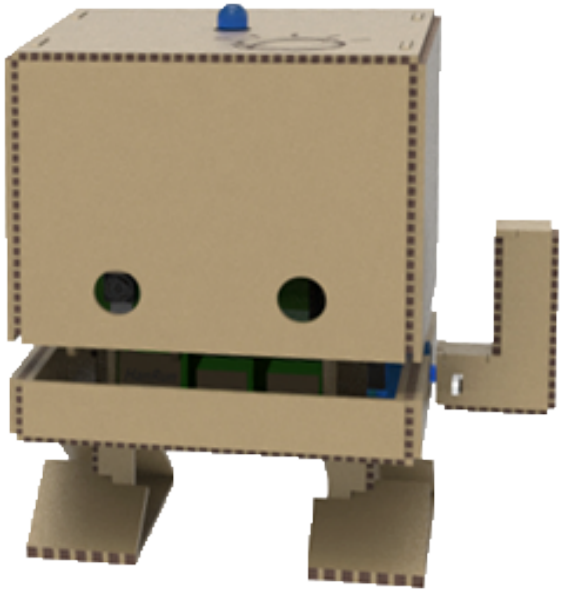
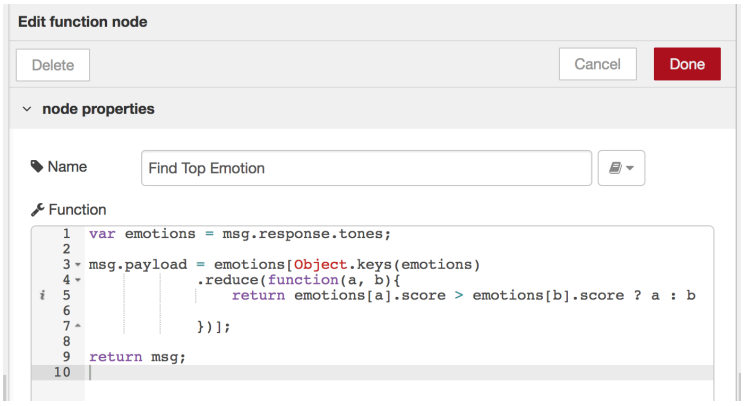
Emotional LED Light

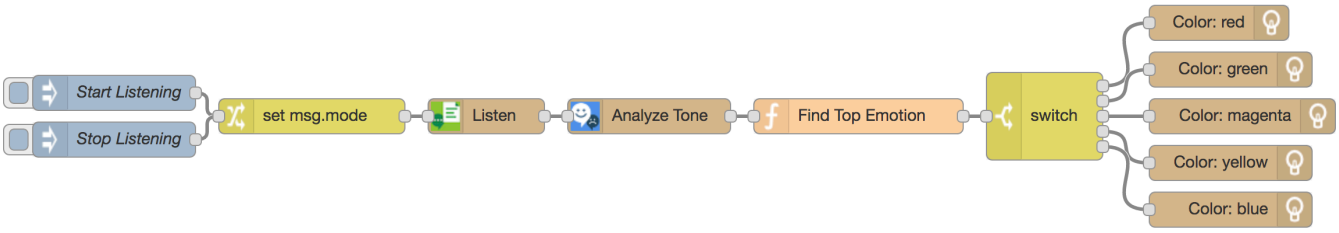
TJBot Nodes in Node-RED

Author: JeanCarl Bisson | jbisson@us.ibm.com | @dothewww





Use the function node to find top scoring emotion from Watson Tone Analyzer service.



Train TJBot to listen using the microphone and the Watson Speech to Text service, analyze emotions in the utterance with the Watson Tone Analyzer service, and control a LED light to represent most prevalent emotion.

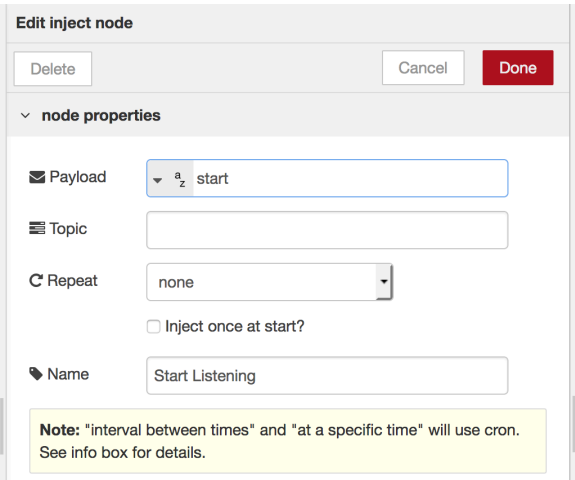
A digital copy of this lab and completed flow can be found at:
`http://ibm.biz/node-red-tjbot-emotional-light`

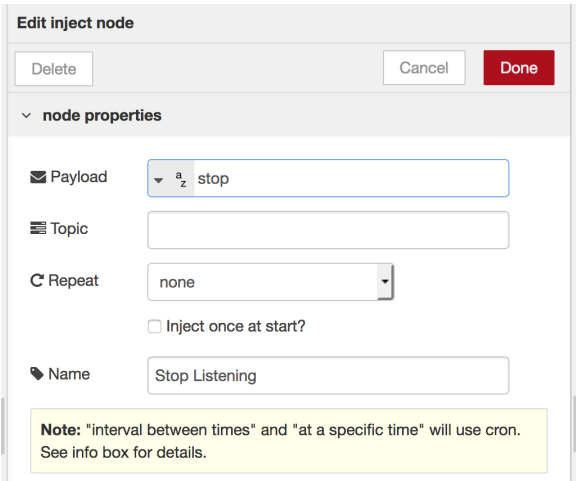
Train TJBot to Listen and React to Emotions

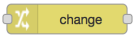
In this lab, we'll use the listen and analyze tone nodes to train TJBot to listen to utterances and analyze the emotion, lighting up an LED light based on which emotion is most prevalent. You will need a microphone and LED connected to the TJBot for this lab.

1. In the Node-RED editor running on the Raspberry Pi, drag two 

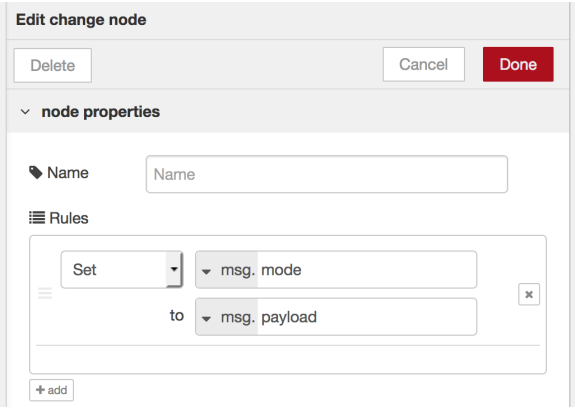
nodes onto the canvas. Double click on each node and configure as shown below.

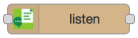




2. Add a 

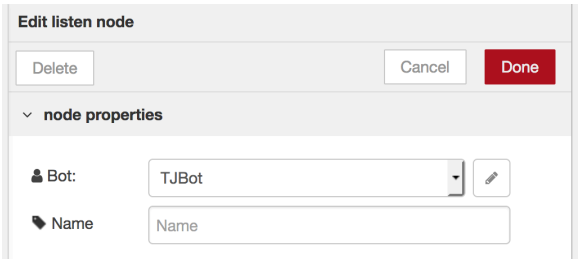
node as shown below. This node will take the payload from the inject nodes and set the **msg.mode** property, which the listen node in the next step will use.



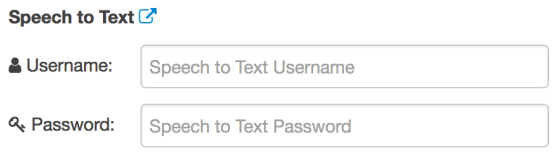
3. Add a 

node as shown below. The listen node has several modes, start and stop, that can be configured programmatically using the **msg.mode** property to start and stop listening. When listening is enabled, the listen node produces messages as TJBot hears and transcribes words, with the text being passed in the **msg.payload** property.

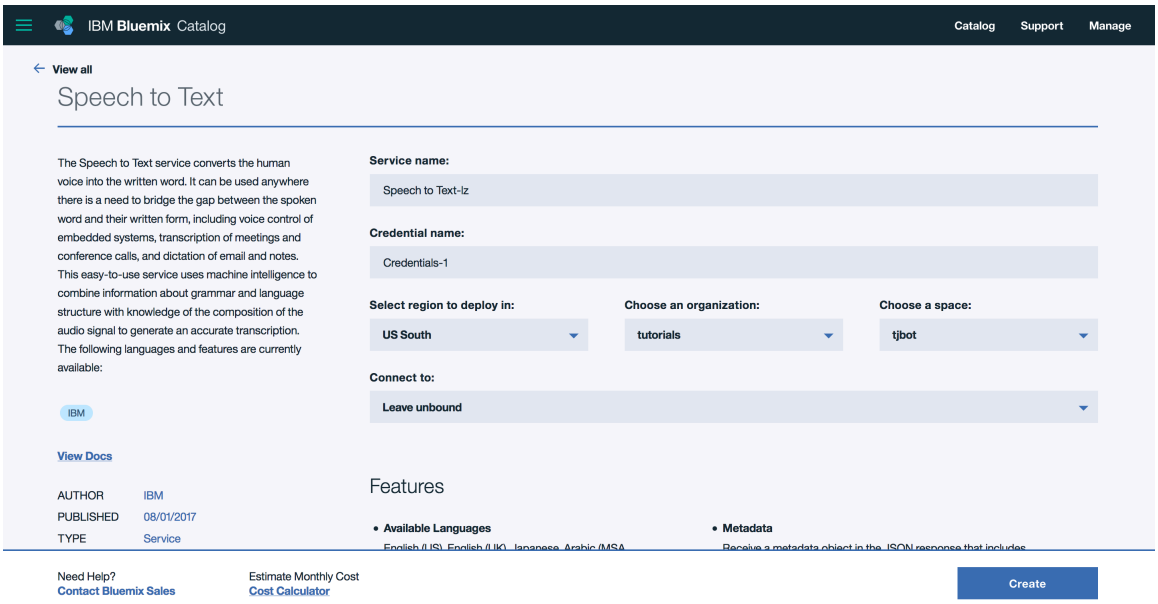
   The listen node uses the Watson Speech to Text service, which requires service credentials from IBM Bluemix. Click on the pencil icon to the right of the **Bot** dropdown menu.



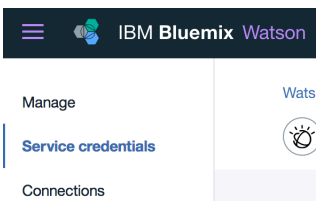
4. Click on the link icon next to the **Speech to Text** heading to launch into the IBM Bluemix console and create a Watson Speech to Text service instance.

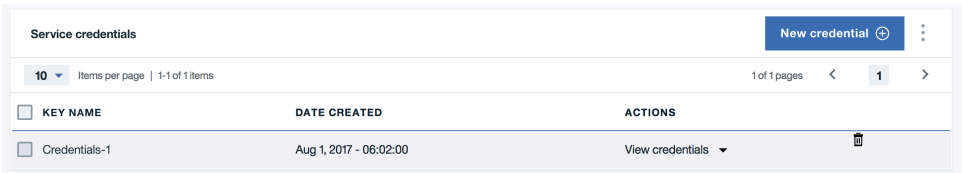


5. If you don't have an IBM Bluemix account, sign up at `bluemix.net`. Sign into your account if prompted. Leave the service name as is and click **Create**.

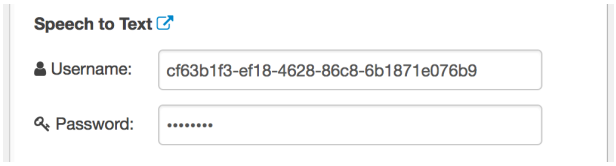


6. Click on **Service Credentials** in the menu on the left. Click on **View Credentials** to display the service credentials.





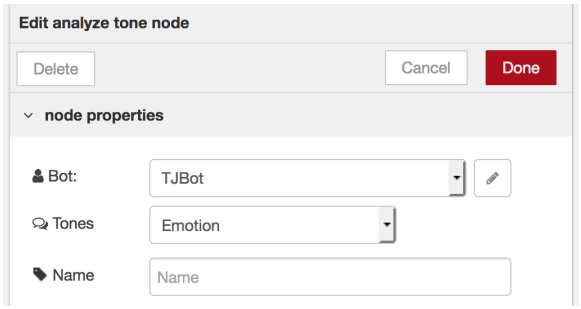
7. Copy the username and password into the fields back in the Node-RED editor under the **Speech to Text** section.



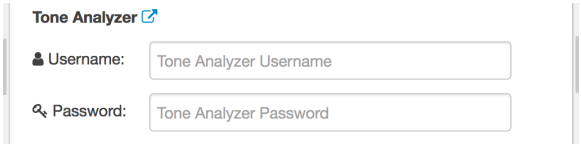
8. Add a 

node as shown below. Select **Emotion** from the **Tones** dropdown menu.

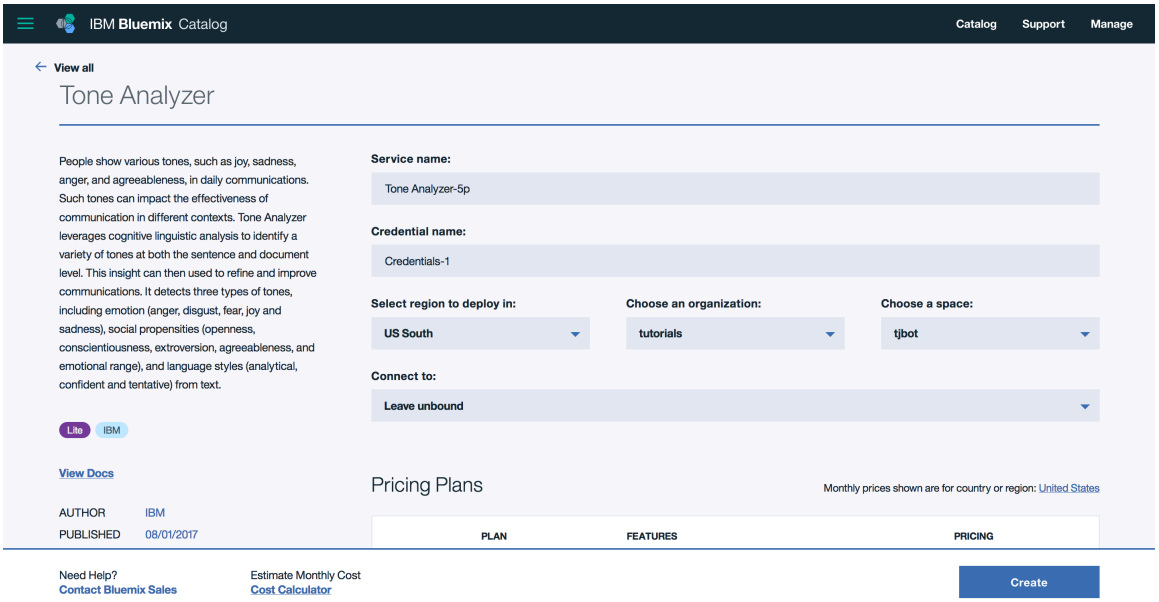
   The analyze node uses the Watson Tone Analyzer service, which requires service credentials from IBM Bluemix. Click on the pencil icon to the right of the **Bot** dropdown menu.



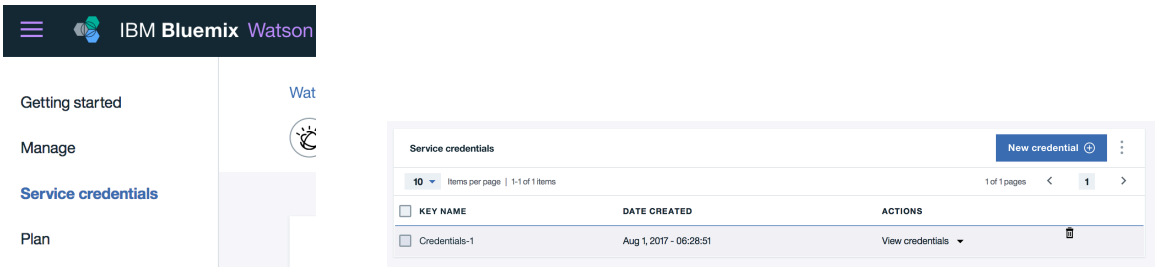
9. Click on the link icon next to the **Tone Analyzer** heading to launch into the IBM Bluemix console and create a Watson Tone Analyzer service instance.



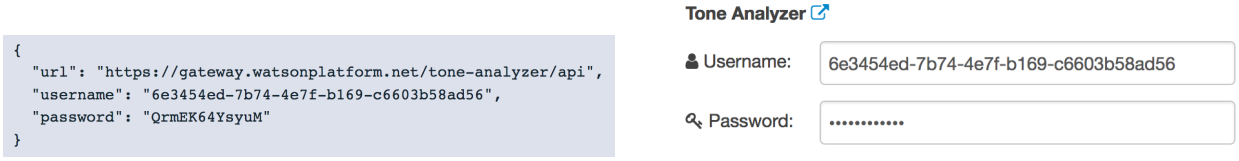
10. Leave the service name as is and click **Create**.



11. Click on **Service Credentials** in the menu on the left. Click on **View Credentials** to display the service credentials.

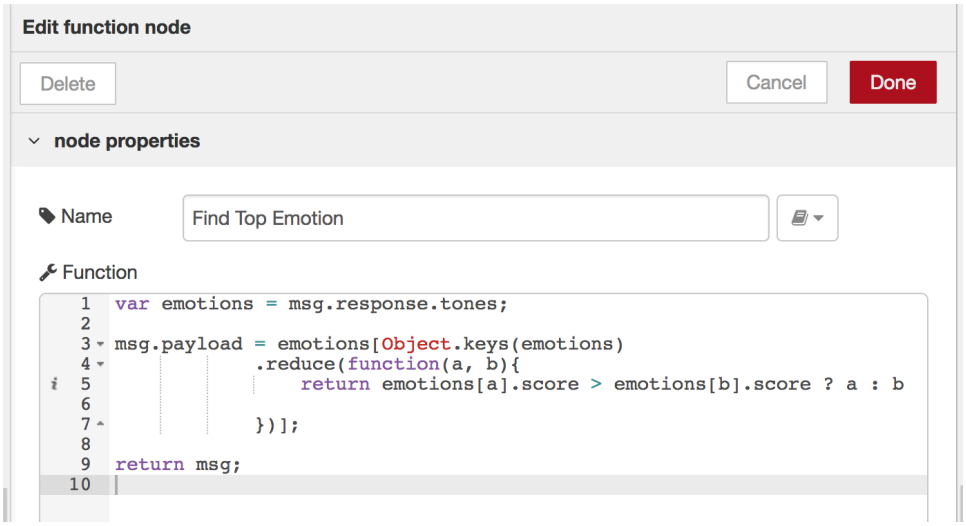


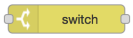
12. Copy the username and password into the fields back in the Node-RED editor under the **Tone Analyzer** section.



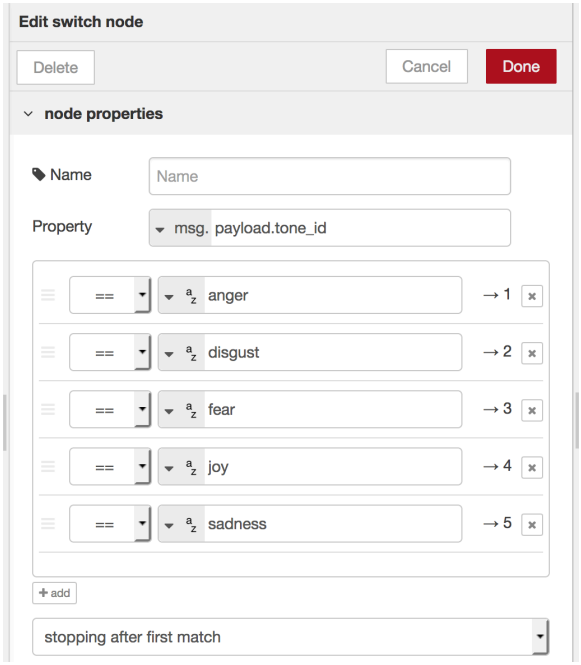
13. Watson Tone Analyzer returns scores for five emotions: anger, disgust, fear, joy, and sadness. Use a 

node to find the emotion that scores the highest.

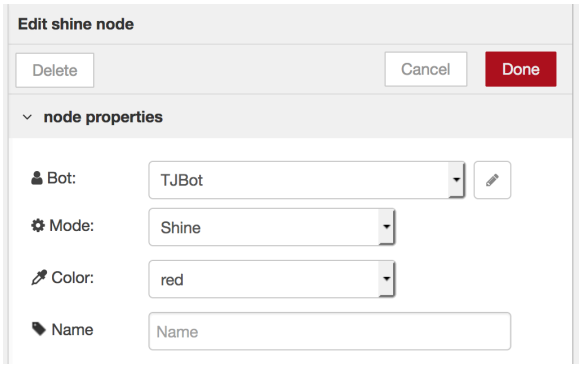


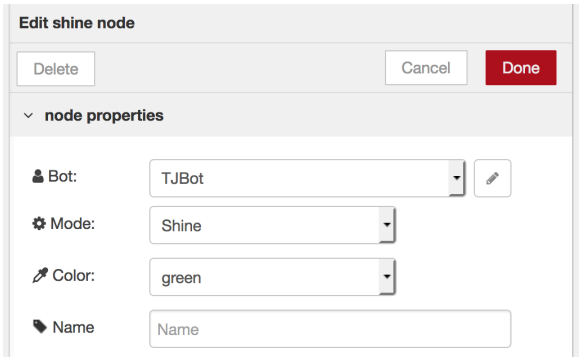
14. Add a 

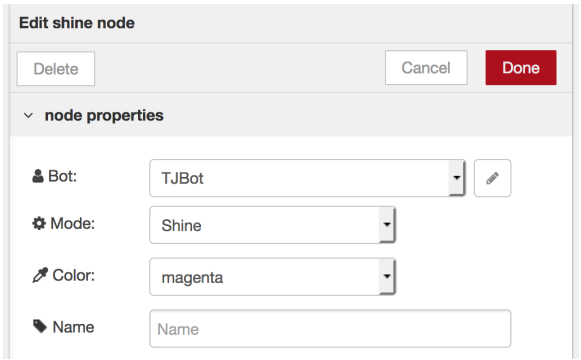
node to test which emotion scored highest as shown below.

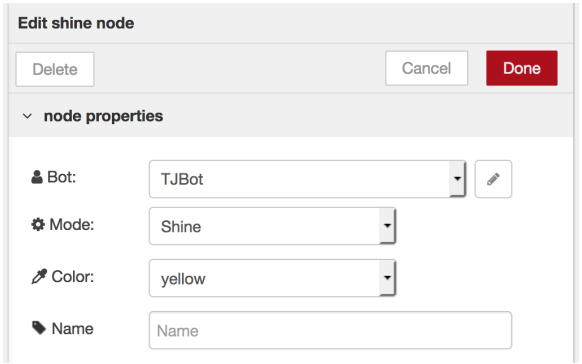


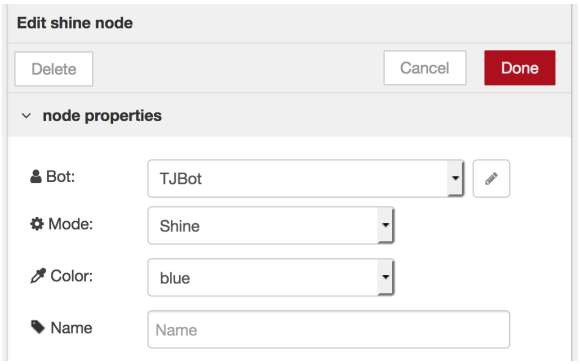
15. Add five shine nodes, each with a color representing one of the emotions: red (anger), green (disgust), magenta (fear), yellow (joy), and blue (sadness).



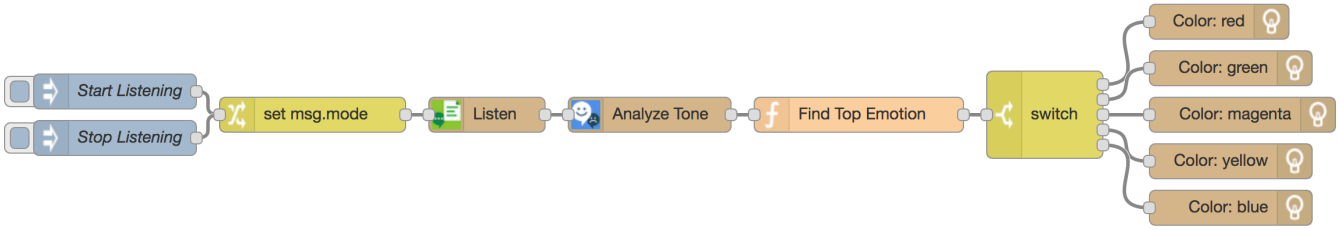








16. Connect the nodes together as shown below.



17. Click on the 

button in the top-right corner of the Node-RED editor to save and deploy the changes.

18. Click on the tab to the left of the inject node labeled **Start Listening** to activate the microphone. Speak into the microphone and wait for the LED to turn the color that represents the emotion that's most prevalent. Click on the tab to the left of the inject node labeled **Stop Listening** to deactivate the microphone.