



SMART HOME

HOME AUTOMATION & ENERGY MONITORING

THIS SECTION OF OUR PROJECT IS CONNECTED TO IBM WATSON AS WELL AS ADAFRUIT

PREFACE

In today's technological world come across several smart equipments. If we define home automation, it is the technology launched for the purpose of automatic switching on/off of the appliances i.e.-lights, fans etc. On the other hand energy monitoring is the process which measures the power as well as the bill which saves a huge amount of wastage. These technologies are used worldwide and is found to be very fruitful.

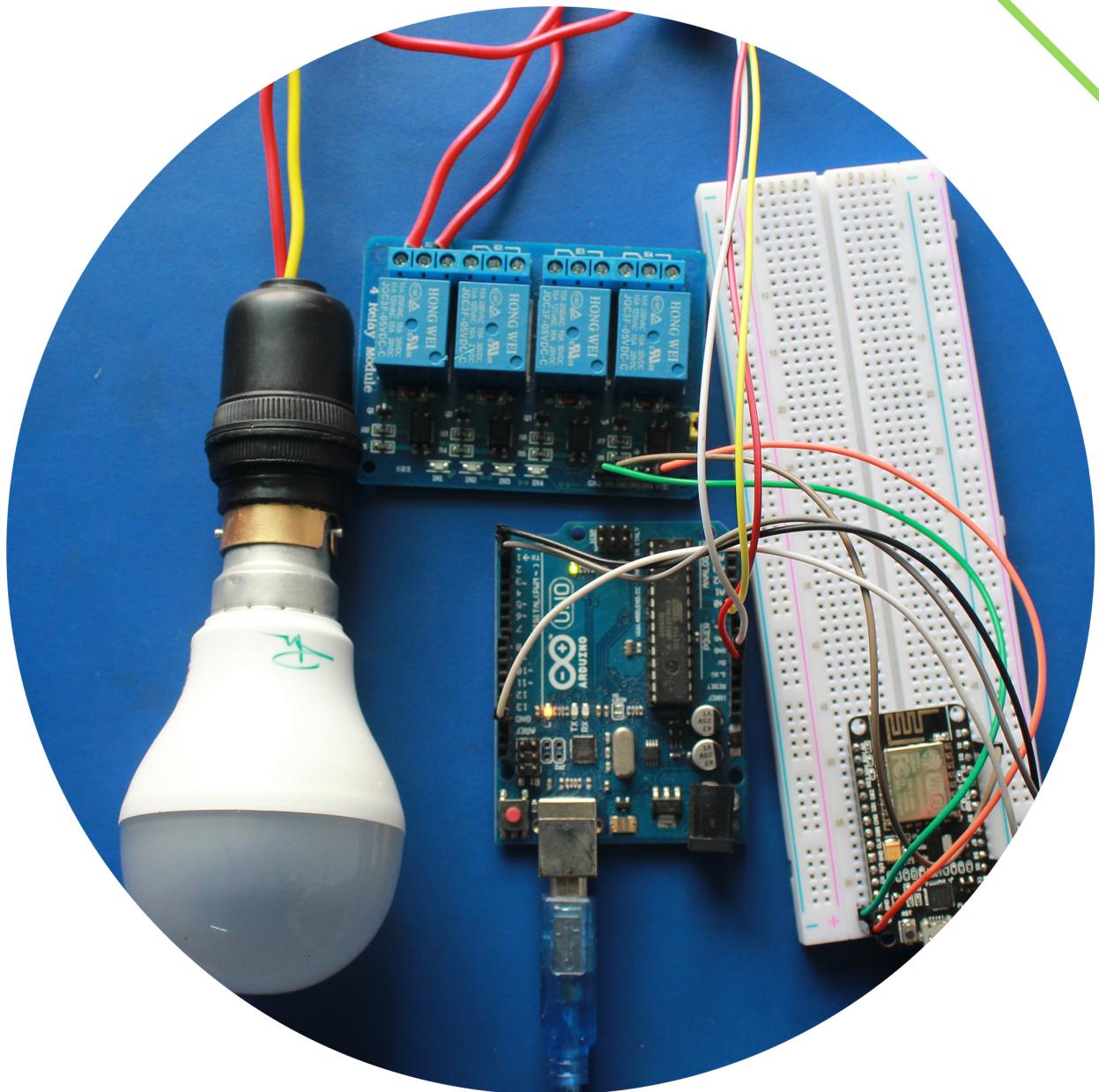
This section of our "SMART HOME" projects revolves around switching ON/OFF home appliances using Google Assistant & Cloud Platform, and monitoring the real-time Energy usage. We have connected our model with the IBM Cloud and Watson Assistant to monitor the Energy usage in Watson Platform. We have also connected our Watson Platform with Node-Red that creates a JavaScript Application with which anyone will be able to access the real time data.

ARCHITECTURE & COMPONENTS

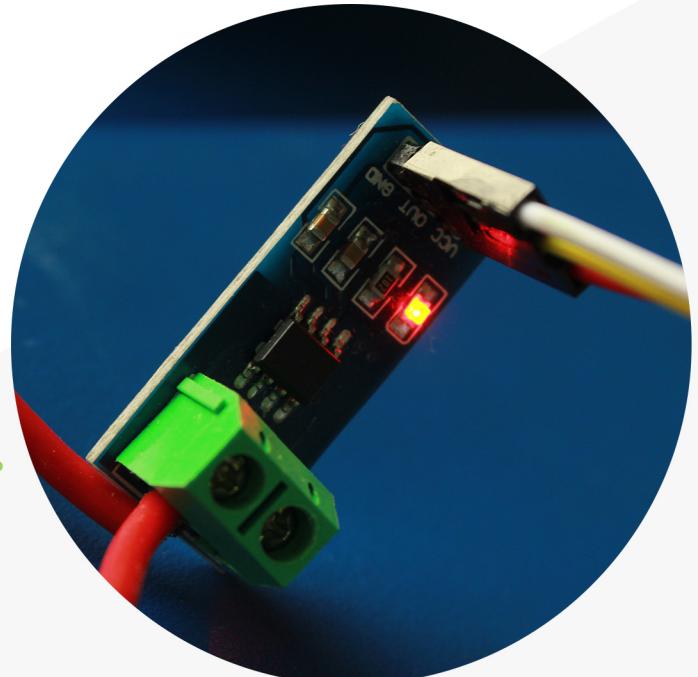
RELAY



NODE MCU



CIRCUIT
DIAGRAM



ACS 712 CURRENT SENSOR

EXECUTION GUIDE

1. Log in to the IBM Cloud with your specified mail id and password.

Log in to IBM

IBMid [Forgot IBMid?](#)

Remember me [\(i\)](#)

[Continue](#)

Don't have an account? [Create an IBMid](#)

2. Next we have to open the dashboard and click on “Create Resource”

The screenshot shows the IBM Cloud dashboard. At the top, there's a navigation bar with 'IBM Cloud', a search bar, and links for 'Catalog', 'Docs', 'Support', 'Manage', and 'asmita barman's Account'. On the right side of the header is a 'Create resource' button. Below the header, the dashboard has several sections: 'Resource summary' (with links to 'What is a resource?', 'Regions for resource deployment', and 'Best practices for organizing resources in resource group'), 'View resources' (with a 'Create' button), 'Planned maintenance' (listing 'Next event: Thu, Apr 04 2019' and 'PLANNED: Update the SSL certificates'), 'Upcoming' (listing 'PLANNED: Update the SSL certificates', 'PLANNED: Update the SSL certificates', and 'PLANNED: Apply fixes and minor improvements'), 'Location status' (showing 'Asia Pacific' with a warning icon), 'Apps' (with a 'Create' button), and 'Support cases' (with a 'Create' button). A 'FEEDBACK' link is located on the far right edge of the dashboard area.

3. Next we have to navigate to the Catalog section and click on Internet of Things.

The screenshot shows the IBM Cloud Catalog interface. At the top, there is a search bar and a message: "Try the best of the Catalog for free with no time restrictions with Lite plans. The Lite filter is enabled. Remove the filter to see the full Catalog." Below the search bar, there is a filter bar with a search icon and the text "label:lite". On the left, a sidebar lists "All Categories (60)" and various service categories like Compute, Containers, Networking, Storage, AI, Analytics, Databases, Developer Tools, Integration, Internet of Things (which is underlined), and Security and Identity. The main area displays several service cards: "Speech to Text" (Lite • IBM • IAM-enabled, Low-latency, streaming transcription), "Text to Speech" (Lite • IBM • IAM-enabled, Synthesizes natural-sounding speech from text.), "Tone Analyzer" (Lite • IBM • IAM-enabled, Tone Analyzer uses linguistic analysis to detect three types of tones from communications: emotion, social, and language. This insight can...), "Visual Recognition" (Lite • IBM • IAM-enabled, Find meaning in visual content: Analyze images for scenes, objects, faces, and other content. Choose a default model off the shelf, or create...), "Watson OpenScale" (Lite • IBM • IAM-enabled, IBM Watson OpenScale is an enterprise-grade environment for AI infused applications that provides enterprises with visibility into how AI...), and "Watson Studio" (Lite • IBM • IAM-enabled, Embed AI and machine learning into your business. Create custom models using your own data.).

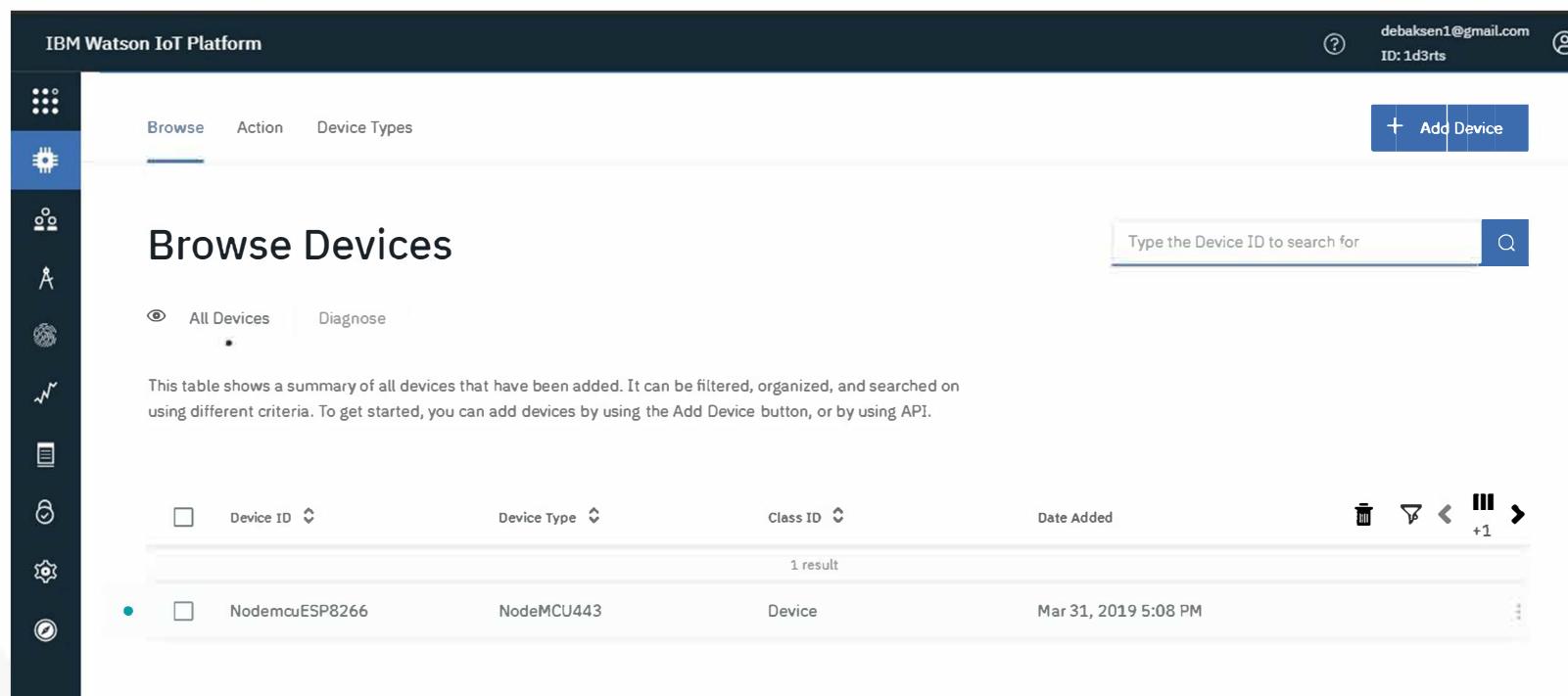
4. Next create a service according to the specifications given below:

The screenshot shows the IBM Watson IoT Platform service creation page. The service name is "Internet of Things Platform-y9". The deployment location is set to "London", the organization is "asmitabarmanserampore@g...", and the space is "dev". There are tags listed as "env:dev, version-1". The "Features" section includes "Connect" (Quickly and securely register and connect your devices and gateways. You can find simple step-by-step instructions for connecting popular devices,) and "Information Management" (Control what happens to the data that is received from your connected devices. Manage data storage, configure data transformation actions, and integrate with other data). On the left, there is a sidebar with "View Docs" and "Terms" links, and details about the author (IBM), published date (19/02/2019), type (Service), and location (Frankfurt, London, Dallas).

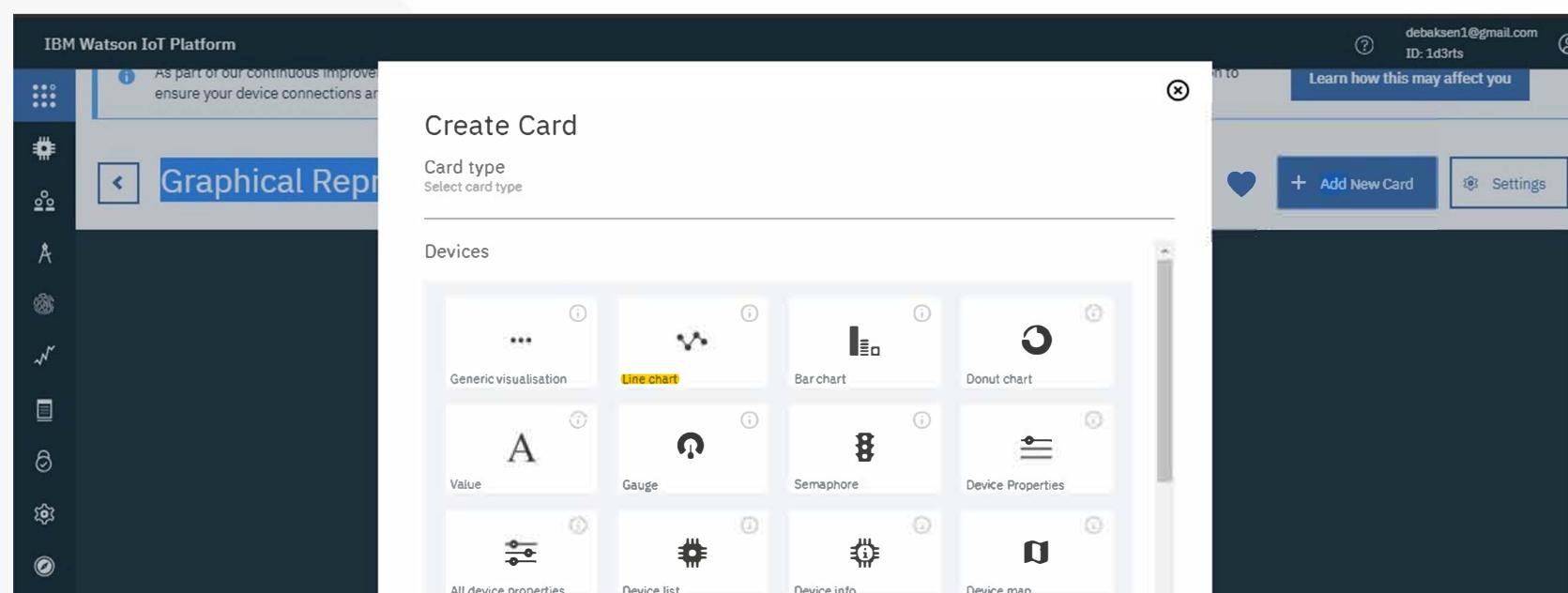
5. Next click on “Add device” and Fillup the credentials. Do not forget to Save the Auth Key, Device ID, Device Type which you have to provide in Arduino IDE code.

The screenshot shows the IBM Watson IoT Platform device management page. It features a sidebar with icons for Home, Devices, Actions, and Diagnose. The main area is titled "Browse Devices" and includes a search bar with the placeholder "Type the Device ID to search for". A message at the top states: "As part of our continuous improvement program, we will be modifying the IP addresses of Watson IoT Platform's messaging endpoints. You may need to take action to ensure your device connections are not disrupted." A blue button "Learn how this may affect you" is available. Below the message, there are tabs for "Browse", "Action", and "Device Types", and a "Add Device" button. A summary table at the bottom indicates that there are 0 devices added.

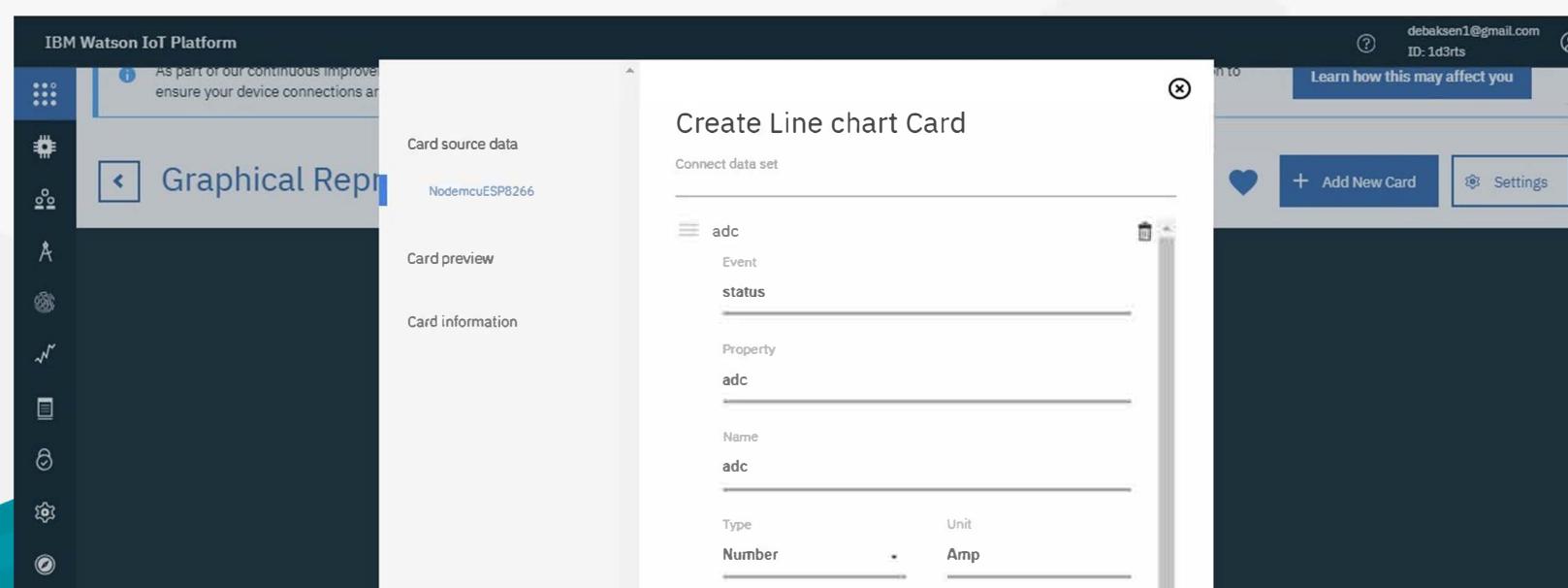
6. Connect our device by using the Auth key, Device ID, Device type that we have saved before. By modifying our NodeMCU's code and providing our details.



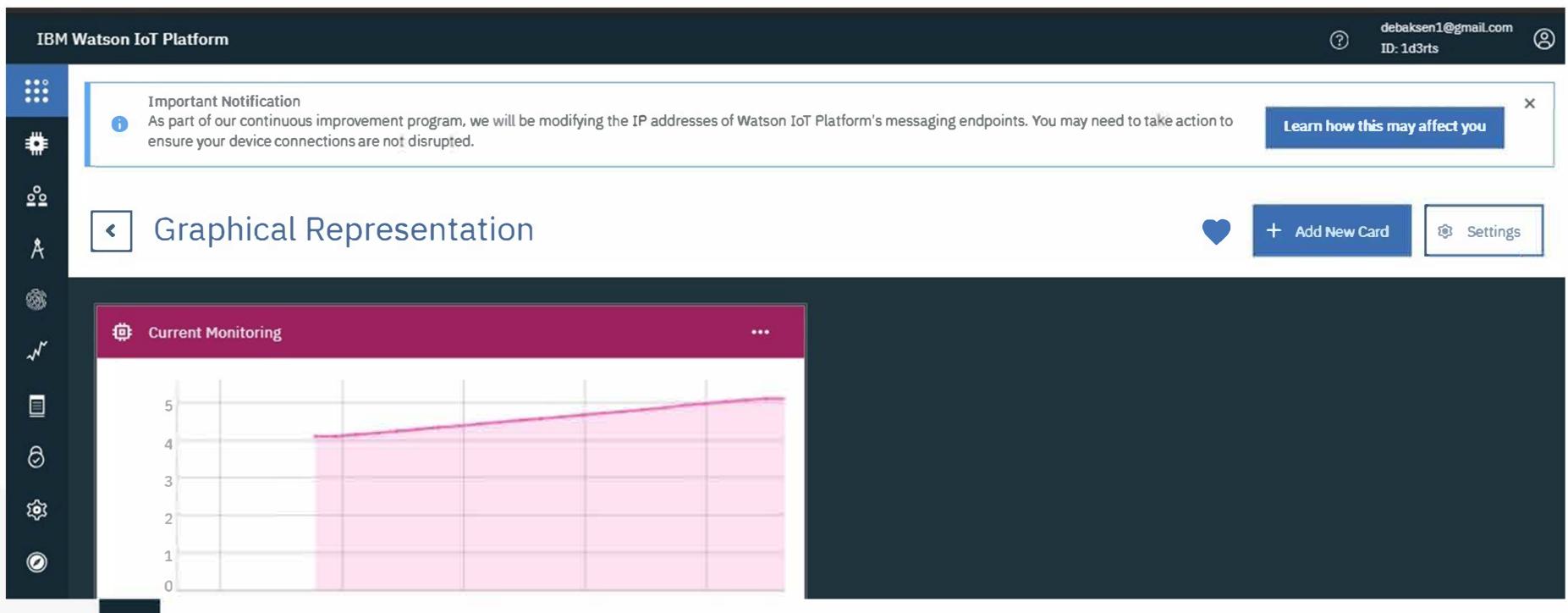
7. Next we have to show the real time data in IBM Watson platform So that we need to create a New Card and set the graphical representa Line Chart.



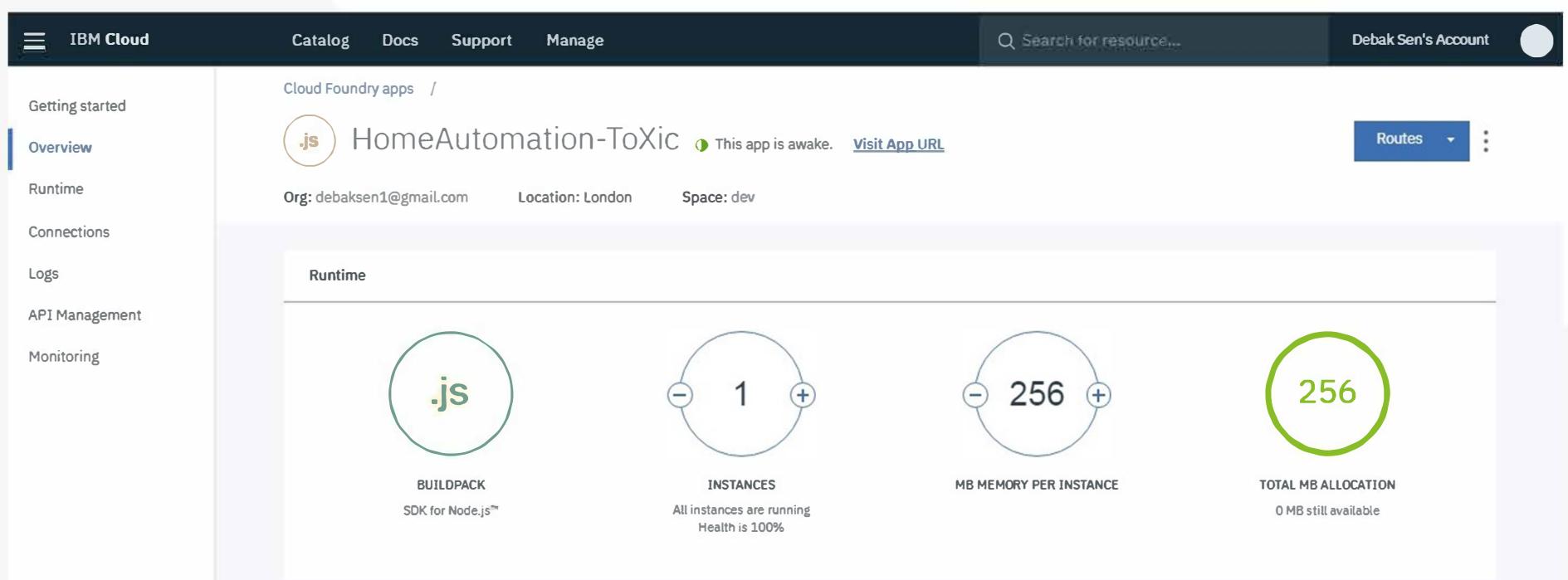
8. Here we have to select Event, property, type of Device etc. and the input type that we are getting from Node MCU



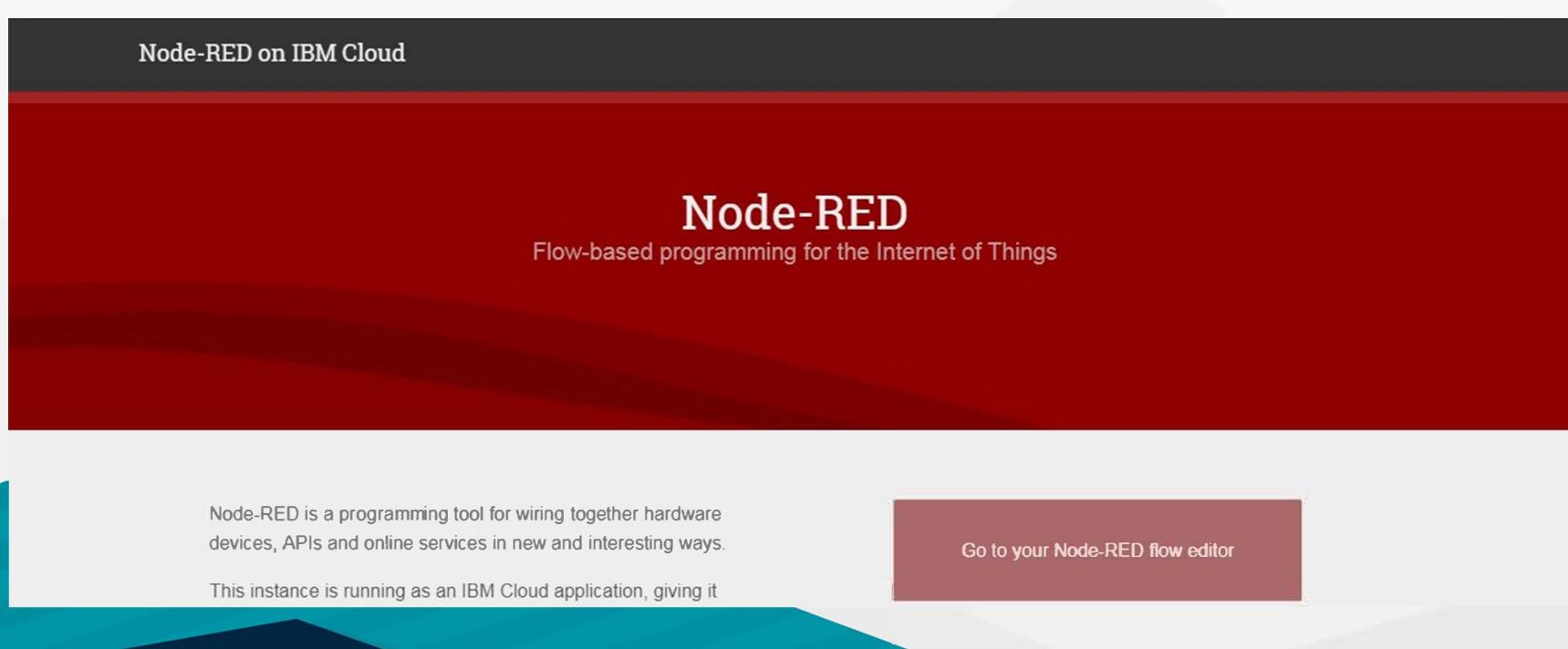
9. This diagram below clearly depicts the Real time Energy values that we are receiving and here is a Cumulative addition of the energy usage.



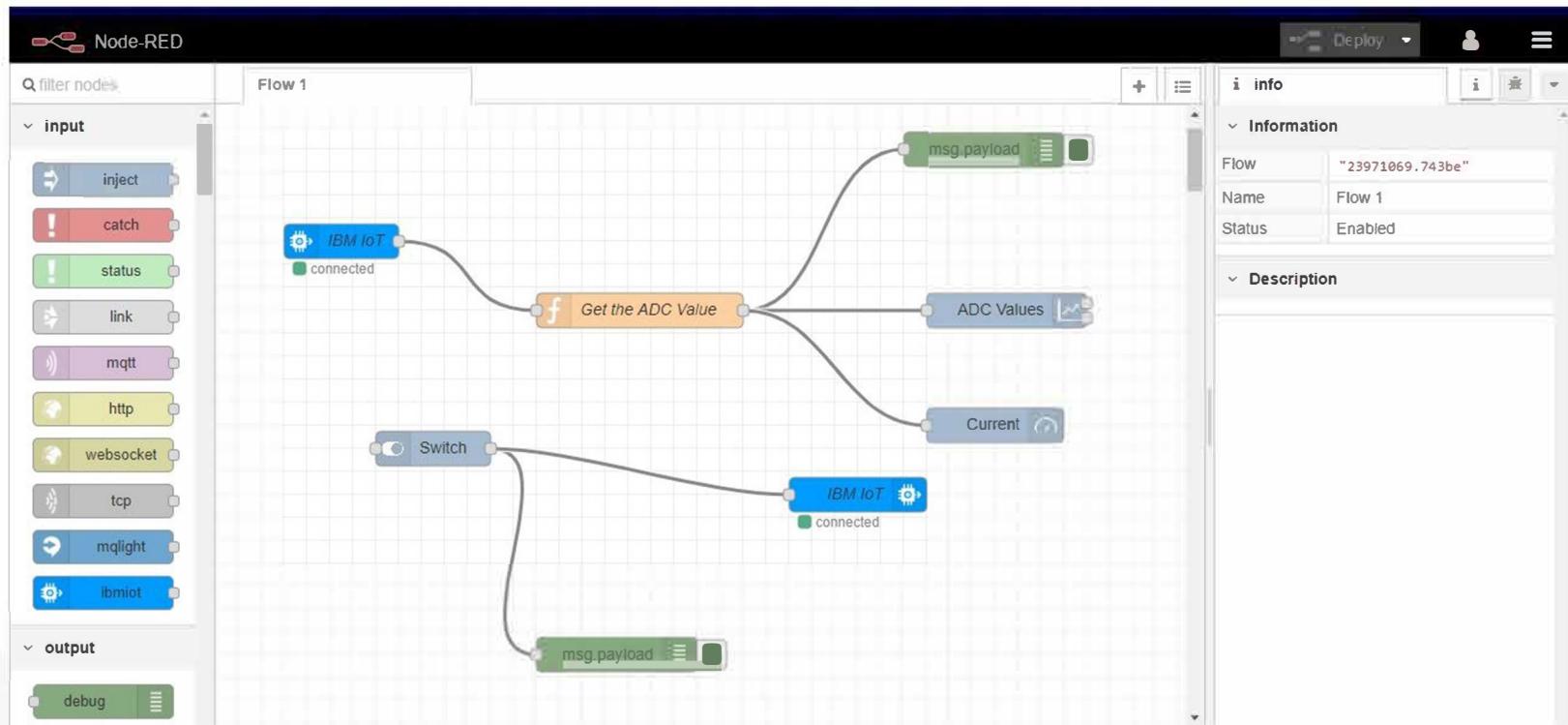
10. Next we have linked our IBM watson platform to the NODE-RED to create a Java Script Application which makes the realtime value public.



11. Here is the Node RED Starter Platform in which we will be working On.



12. Next we have create a the Circuit diagram in the Node Red platform.



13. After creating the connections in the Node Red Platform . Click on deploy and We'll get a url which is displayed bellow

APP URL : <https://homeautomation-toxic.eu-gb.mybluemix.net/ui>

