**Project ID**: SPS\_PRO\_1653

**Application ID**: SPS\_CH\_APL\_20200004249

**Team Name**: Public Transport Management Team

**TOPIC : DEVELOPING A PUBLIC TRANSPORT VEHICLE LOCATION**

**Project Title:** *INTELLIGENT POST-LOCKDOWN MANAGEMENT SYSTEM FOR PUBLIC TRANSPORTATION*

This is a project for creating a public transport vehicle location (or management) for the students which will help them to easily access the vehicle in desired time without any delay,due to the current crisis situation.With mobility limited, it has drastically impacted public transport networks across the world. The impact has resulted in the decrease of farebox revenues (in some cities the reduction in patronage surpasses 90%) and brought with it additional costs to disinfect and implement physical distancing measures in public transport vehicles and infrastructure. It has also resulted in the reduction in industrial and service production, including the halt of activities and the decrease in turnover of the supply industry, and subsequent deaths and infections among public transport workers.

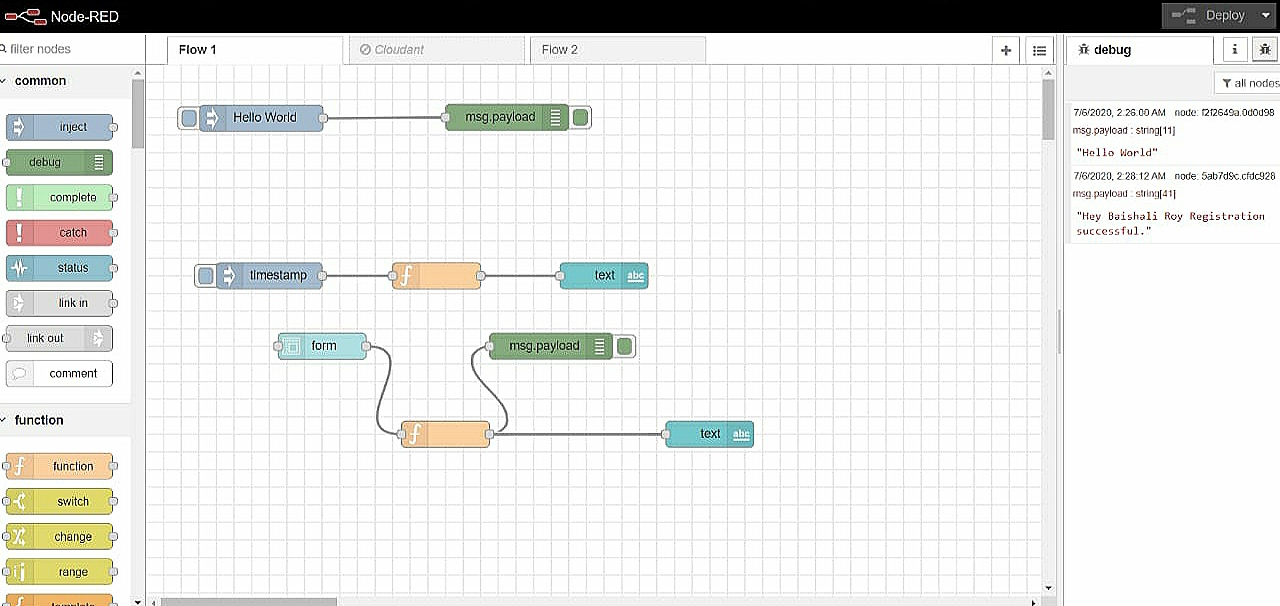
*STEPS ARE SHOWN BELOW:-*

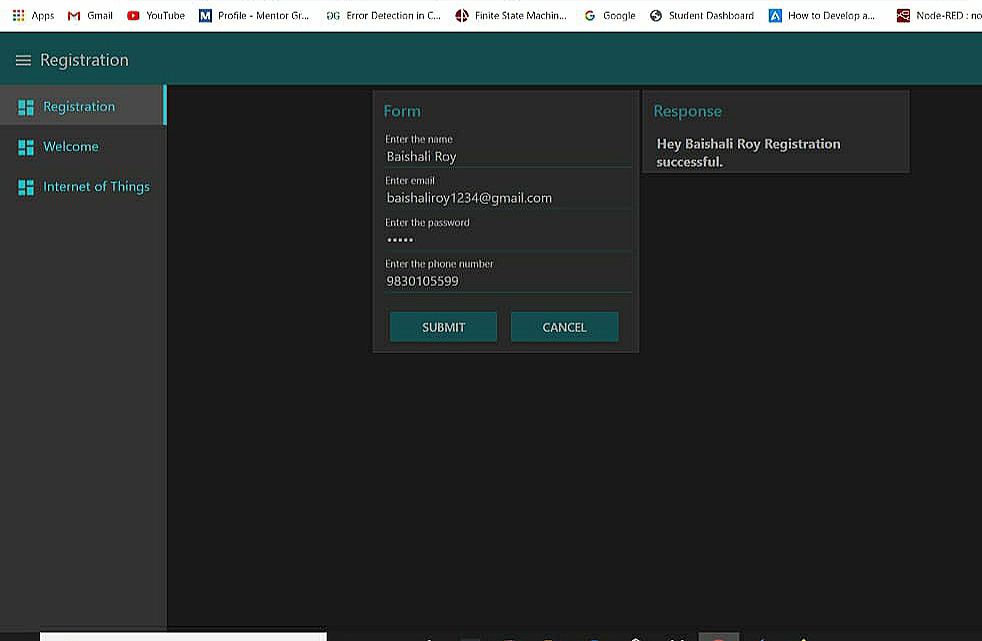
**1) REGISTRATION PROCESS :**

**CODE :**

1. [{"id":"26c6a616.96850a","type":"tab","label":"Flow 1","disabled":false,"info":""},{"id":"b1b11140.4e4ef","type":"inject","z":"26c6a616.96850a","name":"","topic":"","payload":"Hello World","payloadType":"str","repeat":"","crontab":"","once":false,"onceDelay":"","x":131,"y":61,"wires":[["f2f2649a.0d0d98"]]},{"id":"f2f2649a.0d0d98","type":"debug","z":"26c6a616.96850a","name":"","active":true,"console":"false","complete":"false","x":410,"y":60,"wires":[]},{"id":"93d0775a.34fd58","type":"ui\_form","z":"26c6a616.96850a","name":"","label":"","group":"f368fe90.c9fc2","order":1,"width":0,"height":0,"options":[{"label":"Enter the name","value":"name","type":"text","required":true,"rows":null},{"label":"Enter email","value":"email","type":"email","required":true,"rows":null},{"label":"Enter the password","value":"pwd","type":"password","required":true,"rows":null},{"label":"Enter the phone number","value":"phno","type":"number","required":true,"rows":null}],"formValue":{"name":"","email":"","pwd":"","phno":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":200,"y":320,"wires":[["996d5cd6.0a781"]]},{"id":"5ab7d9c.cfdc928","type":"debug","z":"26c6a616.96850a","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","x":460,"y":320,"wires":[]},{"id":"996d5cd6.0a781","type":"function","z":"26c6a616.96850a","name":"","func":"msg.payload = \"Hey \"+msg.payload.name+\" Registration successful.\"\nreturn msg;","outputs":1,"noerr":0,"x":340,"y":420,"wires":[["5ab7d9c.cfdc928","5af12406.f0d8fc"]]},{"id":"5af12406.f0d8fc","type":"ui\_text","z":"26c6a616.96850a","group":"5e67943c.fa93dc","order":2,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":640,"y":420,"wires":[]},{"id":"3c596d48.2c2d22","type":"ui\_text","z":"26c6a616.96850a","group":"2c980b26.881db4","order":0,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":520,"y":240,"wires":[]},{"id":"73523f90.55f3e","type":"function","z":"26c6a616.96850a","name":"","func":"msg.payload = \"This is a Welcome Page.This is a demo to create a tab.\"\nreturn msg;","outputs":1,"noerr":0,"x":330,"y":240,"wires":[["3c596d48.2c2d22"]]},{"id":"4bcbcf2c.9d4e5","type":"inject","z":"26c6a616.96850a","name":"","topic":"","payload":"","payloadType":"date","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":140,"y":240,"wires":[["73523f90.55f3e"]]},{"id":"f368fe90.c9fc2","type":"ui\_group","z":"","name":"Form","tab":"f5d12d63.0091d","order":1,"disp":true,"width":"6","collapse":false},{"id":"5e67943c.fa93dc","type":"ui\_group","z":"","name":"Response","tab":"f5d12d63.0091d","order":3,"disp":true,"width":"6","collapse":false},{"id":"2c980b26.881db4","type":"ui\_group","z":"","name":"Message","tab":"8e56e38e.4dda","order":1,"disp":true,"width":"6","collapse":false},{"id":"f5d12d63.0091d","type":"ui\_tab","z":"","name":"Registration","icon":"dashboard","disabled":false,"hidden":false},{"id":"8e56e38e.4dda","type":"ui\_tab","z":"","name":"Welcome","icon":"dashboard","disabled":false,"hidden":false}]

**PICTURES :**





**NODE-RED LINK :**

**<https://node-red-fgloh.eu-gb.mybluemix.net/red/#flow/26c6a616.96850a>**

**OUTPUT LINK :**

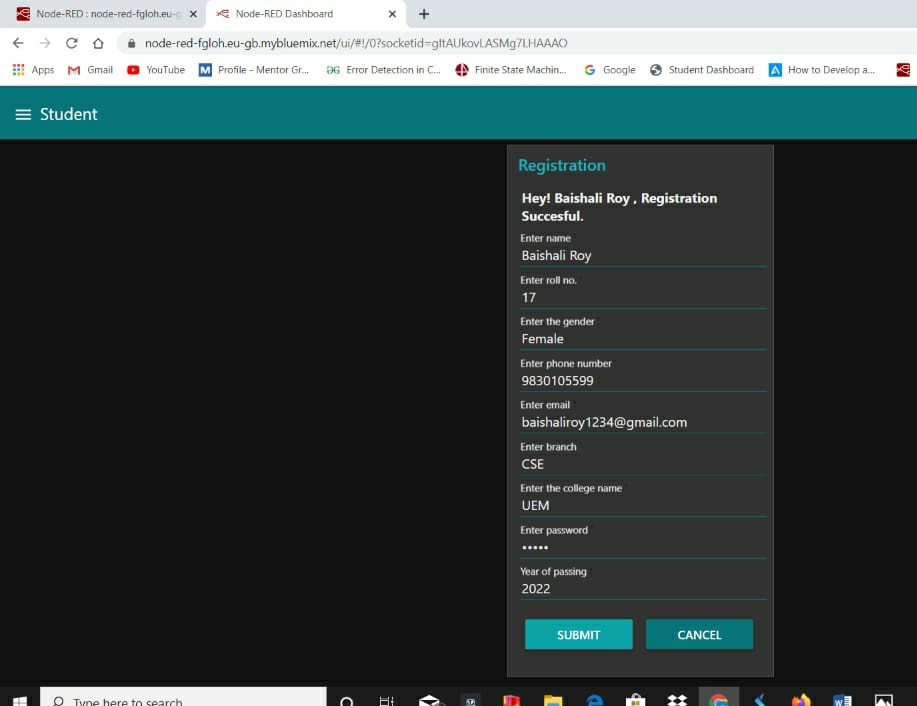
**<https://node-red-fgloh.eu-gb.mybluemix.net/ui/#!/0?socketid=gItAUkovLASMg7LHAAAO>**

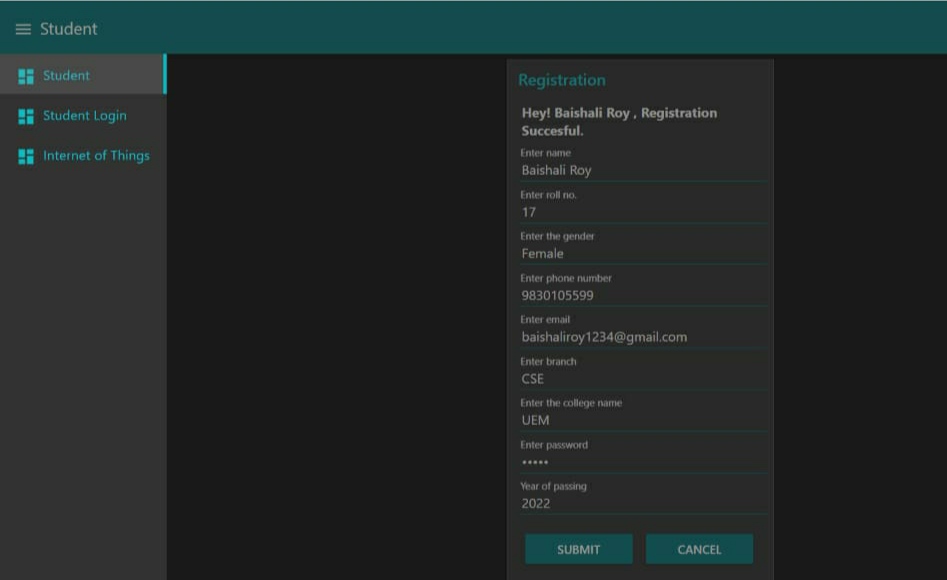
**2) STUDENT-LOGIN VERIFICATION :**

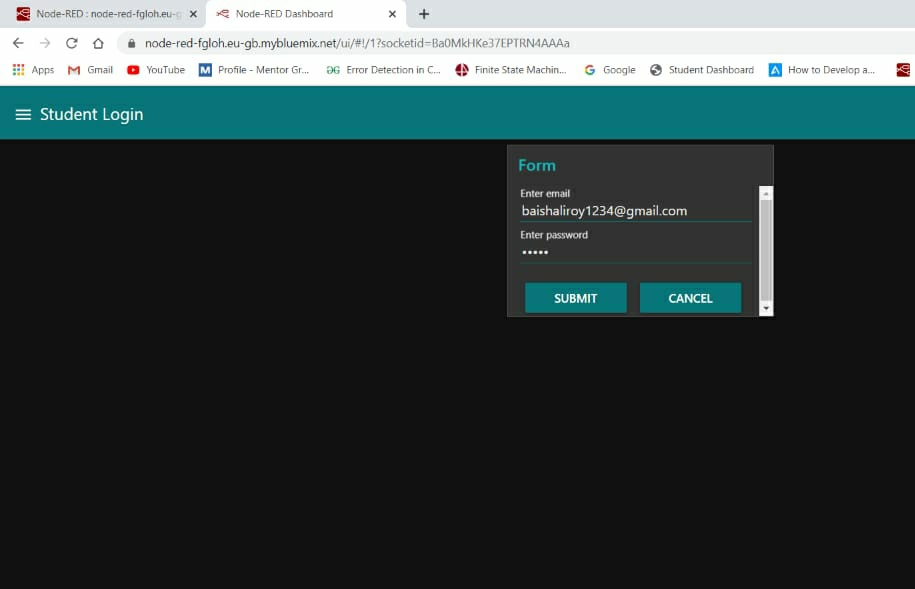
**CODE :**

1. [{"id":"565e5df3.2c7574","type":"tab","label":"Cloudant","disabled":false,"info":""},{"id":"4825f41d.17f5ec","type":"ui\_form","z":"565e5df3.2c7574","name":"","label":"","group":"9cb66a4f.2c05d8","order":0,"width":0,"height":0,"options":[{"label":"Enter name","value":"name","type":"text","required":true,"rows":null},{"label":"Enter roll no.","value":"rollno","type":"text","required":true,"rows":null},{"label":"Enter the gender","value":"gender","type":"text","required":true,"rows":null},{"label":"Enter phone number","value":"phno","type":"number","required":true,"rows":null},{"label":"Enter email","value":"email","type":"email","required":true,"rows":null},{"label":"Enter branch","value":"branch","type":"text","required":true,"rows":null},{"label":"Enter the college name","value":"clg","type":"text","required":true,"rows":null},{"label":"Enter password","value":"pwd","type":"password","required":true,"rows":null},{"label":"Year of passing","value":"yop","type":"number","required":true,"rows":null}],"formValue":{"name":"","rollno":"","gender":"","phno":"","email":"","branch":"","clg":"","pwd":"","yop":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":110,"y":60,"wires":[["efe73f8d.c748e","ab769f5e.7e056"]]},{"id":"86658ad8.37f328","type":"cloudant out","z":"565e5df3.2c7574","name":"","cloudant":"","database":"student\_details","service":"node-red-fgloh-cloudant-1593372422947-34144","payonly":true,"operation":"insert","x":620,"y":60,"wires":[]},{"id":"efe73f8d.c748e","type":"function","z":"565e5df3.2c7574","name":"","func":"msg.payload = {\n \_id: msg.payload.email,\n Name: msg.payload.name,\n Rollnumber: msg.payload.rollno,\n Gender: msg.payload.gender,\n Phonenumber: msg.payload.phno,\n Email:msg.payload.email,\n Branch:msg.payload.branch,\n College:msg.payload.clg,\n YearofPassing: msg.payload.yop\n}\nreturn msg;","outputs":1,"noerr":0,"x":370,"y":160,"wires":[["86658ad8.37f328"]]},{"id":"ab769f5e.7e056","type":"function","z":"565e5df3.2c7574","name":"","func":"msg.payload = \"Hey! \"+msg.payload.name+\" , Registration Succesful. \"\nreturn msg;","outputs":1,"noerr":0,"x":180,"y":240,"wires":[["7ae73d0d.7d1a34"]]},{"id":"7ae73d0d.7d1a34","type":"ui\_text","z":"565e5df3.2c7574","group":"9cb66a4f.2c05d8","order":1,"width":0,"height":0,"name":"","label":"","format":"{{msg.payload}}","layout":"row-spread","x":400,"y":240,"wires":[]},{"id":"915b9455.433ab8","type":"ui\_form","z":"565e5df3.2c7574","name":"","label":"","group":"238e1433.480f3c","order":0,"width":0,"height":0,"options":[{"label":"Enter email","value":"email","type":"email","required":true,"rows":null},{"label":"Enter password","value":"pwd","type":"password","required":true,"rows":null}],"formValue":{"email":"","pwd":""},"payload":"","submit":"submit","cancel":"cancel","topic":"","x":170,"y":400,"wires":[["502fb21.c46be4c"]]},{"id":"502fb21.c46be4c","type":"function","z":"565e5df3.2c7574","name":"","func":"global.set(\"email\",msg.payload.email);\nglobal.set(\"pwd\",msg.payload.pwd);\nreturn msg;","outputs":1,"noerr":0,"x":410,"y":360,"wires":[["eb36a78.fa5fb58"]]},{"id":"161c2c6b.93aa44","type":"cloudant in","z":"565e5df3.2c7574","name":"","cloudant":"","database":"student\_details","service":"node-red-fgloh-cloudant-1593372422947-34144","search":"\_id\_","design":"","index":"","x":600,"y":440,"wires":[["a5ccbf89.0dc53"]]},{"id":"eb36a78.fa5fb58","type":"function","z":"565e5df3.2c7574","name":"","func":"var email = global.get(\"email\")\nmsg.payload = {\n \"\_id\":email\n}\nreturn msg;","outputs":1,"noerr":0,"x":420,"y":460,"wires":[["161c2c6b.93aa44"]]},{"id":"a5ccbf89.0dc53","type":"debug","z":"565e5df3.2c7574","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","x":780,"y":360,"wires":[]},{"id":"9cb66a4f.2c05d8","type":"ui\_group","z":"","name":"Registration","tab":"44b45d8.d1052a4","order":1,"disp":true,"width":"6","collapse":false},{"id":"238e1433.480f3c","type":"ui\_group","z":"","name":"Form","tab":"255cb69a.85e75a","order":2,"disp":true,"width":"6","collapse":false},{"id":"44b45d8.d1052a4","type":"ui\_tab","z":"","name":"Student","icon":"dashboard","disabled":false,"hidden":false},{"id":"255cb69a.85e75a","type":"ui\_tab","z":"","name":"Student Login","icon":"dashboard","disabled":false,"hidden":false}]

**PICTURES :**







**NODE-RED LINK :**

**<https://node-red-fgloh.eu-gb.mybluemix.net/red/#flow/565e5df3.2c7574>**

**OUTPUT LINK :**

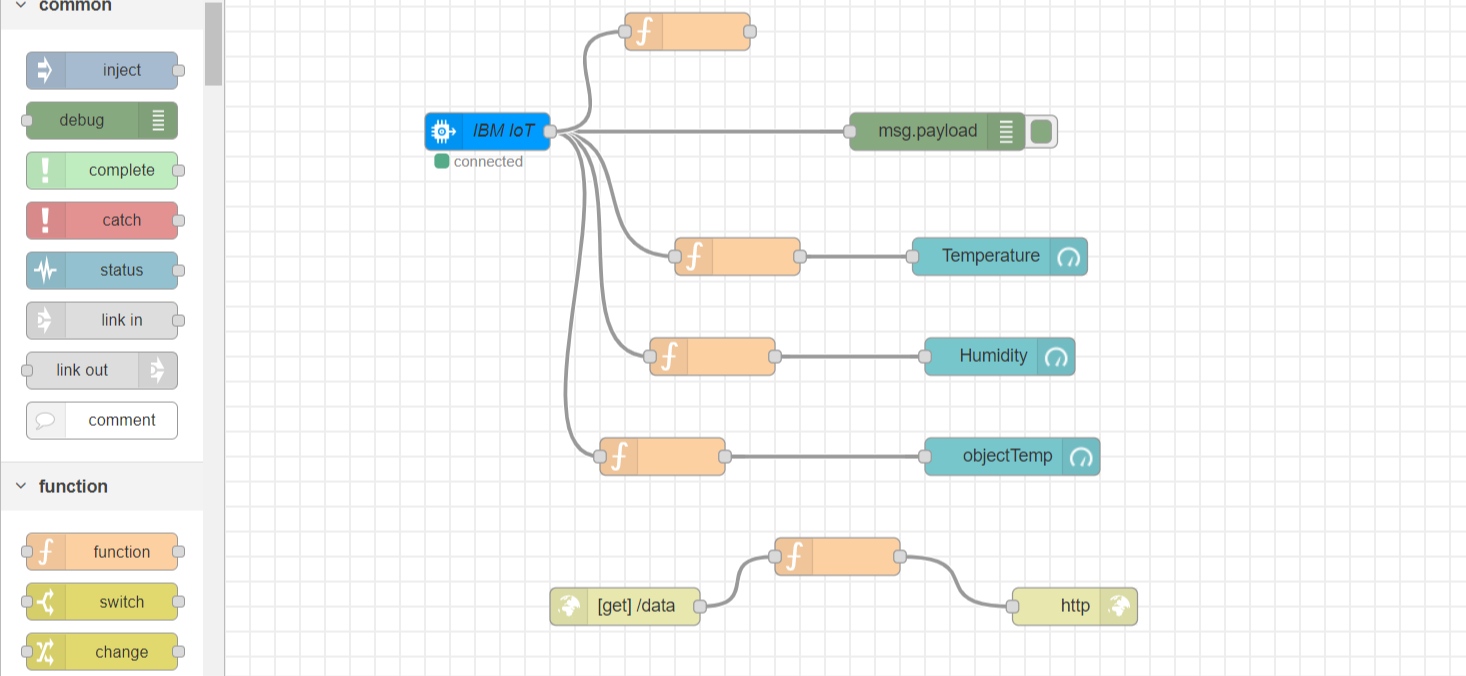
**<https://node-red-fgloh.eu-gb.mybluemix.net/ui/#!/1?socketid=-bIHI3Wk6PvyshC3AAAb>**

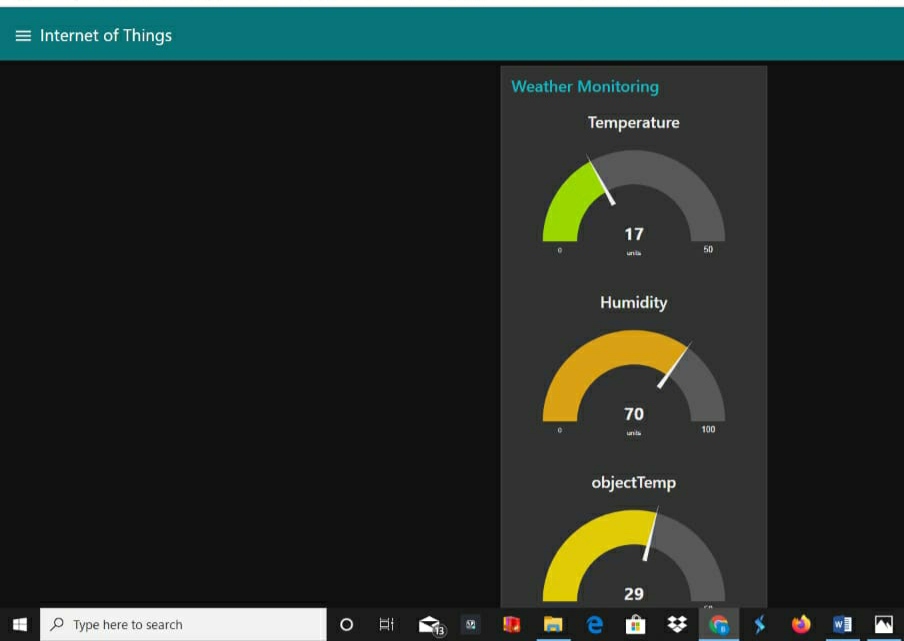
**3) DEVELOPMENT OF IOT:**

**CODE :**

1. [{"id":"c8bdd91d.0091b8","type":"tab","label":"Flow 2","disabled":false,"info":""},{"id":"4516ad7f.1944b4","type":"ibmiot in","z":"c8bdd91d.0091b8","authentication":"apiKey","apiKey":"74d47c41.498ab4","inputType":"evt","logicalInterface":"","ruleId":"","deviceId":"1234","applicationId":"","deviceType":"Baishali","eventType":"+","commandType":"","format":"json","name":"IBM IoT","service":"registered","allDevices":"","allApplications":"","allDeviceTypes":"","allLogicalInterfaces":"","allEvents":true,"allCommands":"","allFormats":"","qos":0,"x":210,"y":120,"wires":[["31b2ba7c.88c0e6","d3fc4db.35556b","39d77b23.3595f4","b8eb035f.3e7bf","7f98896d.596b28"]]},{"id":"31b2ba7c.88c0e6","type":"debug","z":"c8bdd91d.0091b8","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"false","x":570,"y":120,"wires":[]},{"id":"d3fc4db.35556b","type":"function","z":"c8bdd91d.0091b8","name":"","func":"msg.payload = msg.payload.d.temperature\nreturn msg;","outputs":1,"noerr":0,"x":410,"y":220,"wires":[["b2848e1.6be137"]]},{"id":"b2848e1.6be137","type":"ui\_gauge","z":"c8bdd91d.0091b8","name":"","group":"7f19d261.6d6c4c","order":0,"width":0,"height":0,"gtype":"gage","title":"Temperature","label":"units","format":"{{value}}","min":0,"max":"50","colors":["#00b500","#e6e600","#ca3838"],"seg1":"","seg2":"","x":620,"y":220,"wires":[]},{"id":"39d77b23.3595f4","type":"function","z":"c8bdd91d.0091b8","name":"","func":"msg.payload = msg.payload.d.humidity\nreturn msg;","outputs":1,"noerr":0,"x":390,"y":300,"wires":[["f9b3fc1b.f99e"]]},{"id":"f9b3fc1b.f99e","type":"ui\_gauge","z":"c8bdd91d.0091b8","name":"","group":"7f19d261.6d6c4c","order":0,"width":0,"height":0,"gtype":"gage","title":"Humidity","label":"units","format":"{{value}}","min":0,"max":"100","colors":["#00b500","#e6e600","#ca3838"],"seg1":"","seg2":"","x":620,"y":300,"wires":[]},{"id":"b8eb035f.3e7bf","type":"function","z":"c8bdd91d.0091b8","name":"","func":"msg.payload = msg.payload.d.objectTemp\nreturn msg;","outputs":1,"noerr":0,"x":350,"y":380,"wires":[["38aa7d0b.b2e0c2"]]},{"id":"38aa7d0b.b2e0c2","type":"ui\_gauge","z":"c8bdd91d.0091b8","name":"","group":"7f19d261.6d6c4c","order":0,"width":0,"height":0,"gtype":"gage","title":"objectTemp","label":"units","format":"{{value}}","min":0,"max":"50","colors":["#00b500","#e6e600","#ca3838"],"seg1":"","seg2":"","x":630,"y":380,"wires":[]},{"id":"dad5e395.768e2","type":"http in","z":"c8bdd91d.0091b8","name":"","url":"/data","method":"get","upload":false,"swaggerDoc":"","x":320,"y":500,"wires":[["cf99c51d.9489f8"]]},{"id":"7f98896d.596b28","type":"function","z":"c8bdd91d.0091b8","name":"","func":"global.set(\"temperature\",msg.payload.d.temperature)\nglobal.set(\"humidity\",msg.payload.d.humidity)\nglobal.set(\"objectTemp\",msg.payload.d.objectTemp)\nreturn msg;","outputs":1,"noerr":0,"x":370,"y":40,"wires":[[]]},{"id":"cf99c51d.9489f8","type":"function","z":"c8bdd91d.0091b8","name":"","func":"msg.payload = {\n \"temperature\":global.get(\"temperature\"),\n \"humidity\":global.get(\"humidity\"),\n \"objectTemp\":global.get(\"objectTemp\")\n}\nreturn msg;","outputs":1,"noerr":0,"x":490,"y":460,"wires":[["de950b6f.54f718"]]},{"id":"de950b6f.54f718","type":"http response","z":"c8bdd91d.0091b8","name":"","statusCode":"","headers":{},"x":680,"y":500,"wires":[]},{"id":"74d47c41.498ab4","type":"ibmiot","z":"","name":"","keepalive":"60","serverName":"lpfts7.messaging.internetofthings.ibmcloud.com","cleansession":true,"appId":"","shared":false},{"id":"7f19d261.6d6c4c","type":"ui\_group","z":"","name":"Weather Monitoring","tab":"312b6e85.edbcc2","order":1,"disp":true,"width":"6","collapse":false},{"id":"312b6e85.edbcc2","type":"ui\_tab","z":"","name":"Internet of Things","icon":"dashboard","disabled":false,"hidden":false}]

**PICTURES :**



**NODE-RED LINK :**

**<https://node-red-fgloh.eu-gb.mybluemix.net/red/#flow/c8bdd91d.0091b8>**

**OUTPUT LINK :**

**<https://node-red-fgloh.eu-gb.mybluemix.net/ui/#!/2?socketid=ojPZsSrN8ZyXv7WRAAAj>**

**4) VEHICLE TRANSPORT MANAGEMENT**

**NODES USED HERE :**

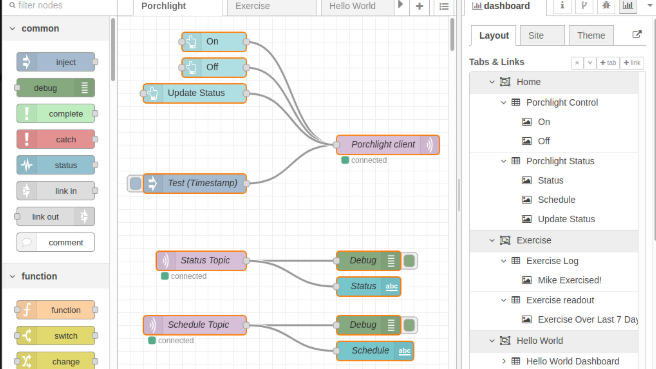
#### **Node Types** **:**

* function (x1)
* inject (x1)
* mqtt in (x1)
* mqtt-broker (x1)
* websocket out (x1)
* websocket-listener (x1)
* and also WORLD MAP

**CODE :**

1. [{"id":"eb89d20e.80ad7","type":"mqtt-broker","broker":"mqtt.hsl.fi","port":"1883","clientid":""},{"id":"51a0d6.314d5f2c","type":"websocket-listener","path":"/ws/worldmap","wholemsg":"false"},{"id":"7ceea90f.5baac8","type":"worldmap","name":"","x":465.8541946411133,"y":125.30556869506836,"z":"8f216ca4.df9c7","wires":[]},{"id":"2522acde.dfe564","type":"websocket out","name":"","server":"51a0d6.314d5f2c","client":"","x":492.8541946411133,"y":48.055559158325195,"z":"8f216ca4.df9c7","wires":[]},{"id":"92696722.a8e9b8","type":"inject","name":"Map center to Helsinki","topic":"","payload":"","payloadType":"str","repeat":"","crontab":"","once":true,"x":170.50003051757812,"y":46.444443702697754,"z":"8f216ca4.df9c7","wires":[["2522acde.dfe564"]]},{"id":"954adec.b86ee2","type":"mqtt in","name":"HSL open API","topic":"/hfp/journey/#","broker":"eb89d20e.80ad7","x":116.59944152832031,"y":120.09091472625732,"z":"8f216ca4.df9c7","wires":[["5c403301.5bb7fc"]]},{"id":"5c403301.5bb7fc","type":"function","name":"Parse","func":"var data=JSON.parse(msg.payload);\nvar thing = {\n name:data.VP.veh, \n lat:data.VP.lat, \n lon:data.VP.long,\n icon:\"car\",\n iconColor:\"red\",\n extrainfo:data.VP.desi\n};\nmsg.payload=thing;\nreturn msg;","outputs":1,"noerr":0,"x":271.84946060180664,"y":119.34091377258301,"z":"8f216ca4.df9c7","wires":[["2522acde.dfe564"]]}]

**PICTURES :**



***THANK YOU.***