

Project development phase

Sprint 4

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| DATE | 7 TH NOVEMBER 2022 |
| TEAM ID | PNT2022TMID36762 |
| PROJECT NAME | GAS LEAKAGE MONITORING AND ALERTING SYSTEM FOR INDUSTRIES |

SPRINT 4:

WEB UI (to make the user interact with the software)

The screenshot displays the IBM Watson IoT Platform web interface. The main heading is 'Browse Devices'. Below it, there are tabs for 'All Devices' and 'Diagnose'. A descriptive text states: 'This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.' Below this is a search bar labeled 'Search by Device ID' and a 'Device Simulator' toggle switch. The table lists two devices:

| Device ID | Status | Device Type | Class ID | Date Added | Descriptive Location |
|-----------|--------------|-------------|----------|---------------------|----------------------|
| 1229 | Disconnected | IOTsensor | Device | Nov 6, 2022 3:56 PM | |
| Test1 | Disconnected | monitor | Device | Nov 9, 2022 1:57 PM | |

At the bottom of the table, it says 'Items per page 50 | 1-2 of 2 items' and '1 of 1 page'. A status bar at the bottom right indicates '1 Simulation running'.

Node-RED interface showing a flow diagram and the 'Edit ibmiot in node' configuration panel.

Flow Diagram:

- Flow 1: **ibmiot** node (connected) → **humidity** function node → **temp** function node → **gas_level** function node.
- Flow 2: **[get]/sensor** node → **function** node.
- Flow 3: **ON** node → **function** node.
- Flow 4: **OFF** node → **function** node.

Edit ibmiot in node Properties:

- Authentication: API Key
- API Key: gas
- Input Type: Device Event
- Device Type: All or +
- Device Id: All or device id e.g. ab12cd231a21
- Event: All or +
- Format: All or json
- QoS: 0
- Name: IBM IoT
- Service: registered
- Enabled: ☐

Debug Console:

```
msg.payload: number
88
11/19/2022, 6:25:23 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
44
11/19/2022, 6:25:29 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: Object
{ temp: 52, humidity: 1,
  gas_percent: 47 }
11/19/2022, 6:25:30 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
1
11/19/2022, 6:25:30 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
52
11/19/2022, 6:25:30 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
47
```

Node-RED interface showing a flow diagram and the 'Edit function node' configuration panel.

Flow Diagram:

- Flow 1: **ibmiot** node (connected) → **humidity** function node → **temp** function node → **gas_level** function node.
- Flow 2: **[get]/sensor** node → **function** node.
- Flow 3: **ON** node → **function** node.
- Flow 4: **OFF** node → **function** node.

Edit function node Properties:

- Name: humidity
- Setup: ☐ On Start: ☐ On Message: ☒ On Stop: ☐

Function Code:

```
1
2 msg.payload=msg.payload.humidity
3 global.set('t',msg.payload)
4 return msg;
```

Debug Console:

```
msg.payload: number
52
11/19/2022, 6:25:30 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
47
11/19/2022, 6:25:35 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: Object
{ temp: 16, humidity: 7,
  gas_percent: 4 }
11/19/2022, 6:25:35 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
7
11/19/2022, 6:25:35 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
16
11/19/2022, 6:25:35 PM node: 11588809d3db6748
iot-2/type/monitorid/Test/ev/ev/2/frm/json :
msg.payload: number
4
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node. The function node is editing the 'humidity' property. The debug console shows the message payload: { temp: 16, humidity: 7, gas_percent: 4 }.

Flow 1: IBM IoT (connected) → humidity → temp → gas_level

Flow 2: [get]/sensor → ON → OFF

Function Node Edit:

```
1 msg.payload=msg.payload.humidity
2 global.set('t',msg.payload)
3 return msg;
```

Debug Console:

```
msg.payload: number
52
11/19/2022, 6:25:30 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
47
11/19/2022, 6:25:35 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: Object
> { temp: 16, humidity: 7,
  gas_percent: 4 }
11/19/2022, 6:25:35 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
7
11/19/2022, 6:25:35 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
16
11/19/2022, 6:25:35 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
4
```

Node-RED interface showing a flow with an IBM IoT node connected to a function node. The function node is editing the 'temp' property. The debug console shows the message payload: { temp: 44, humidity: 36, gas_percent: 67 }.

Flow 1: IBM IoT (connected) → humidity → temp → gas_level

Flow 2: [get]/sensor → ON → OFF

Function Node Edit:

```
1 msg.payload={"temp":global.get('h'),'humidity':global.get('t'),'gas_level':global.get('g')}
2 return msg;
```

Debug Console:

```
msg.payload: number
16
11/19/2022, 6:25:35 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
4
11/19/2022, 6:25:41 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: Object
> { temp: 44, humidity: 36,
  gas_percent: 67 }
11/19/2022, 6:25:41 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
36
11/19/2022, 6:25:41 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
44
11/19/2022, 6:25:41 PM node: 11588059d3db6748
iot-2?type=monitorId/Test/ev/ev/2?frmt=json :
msg.payload: number
67
```

Browser tabs: (4) WhatsApp, Service Details, IBM Watson, Node-RED, Node-RED, 159.122.179.5, MIT App Inventor, MIT App Inventor, tested code in, +

Address bar: Not secure | 159.122.179.50:31329/ui/#/0/socketid=Qj4p2XScrAtRaAC4AABN

Navigation: Home

Default

OFF

SPRINT-4 (1).pdf, SPRINT-4.pdf, Show all

Windows taskbar: Type here to search, 28°C Mostly sunny, 18:40 19-11-2022

Browser tabs: Resou, Node, IBM V, Node, (1) Wi, Fwd, G, how, IBM, GitHub, B3M, W New, G how, New, +

Address bar: Not secure | 159.122.179.50:31329/ui/#/3/socketid=BpYVko3RJfOH9RHmAABH

Navigation: switch

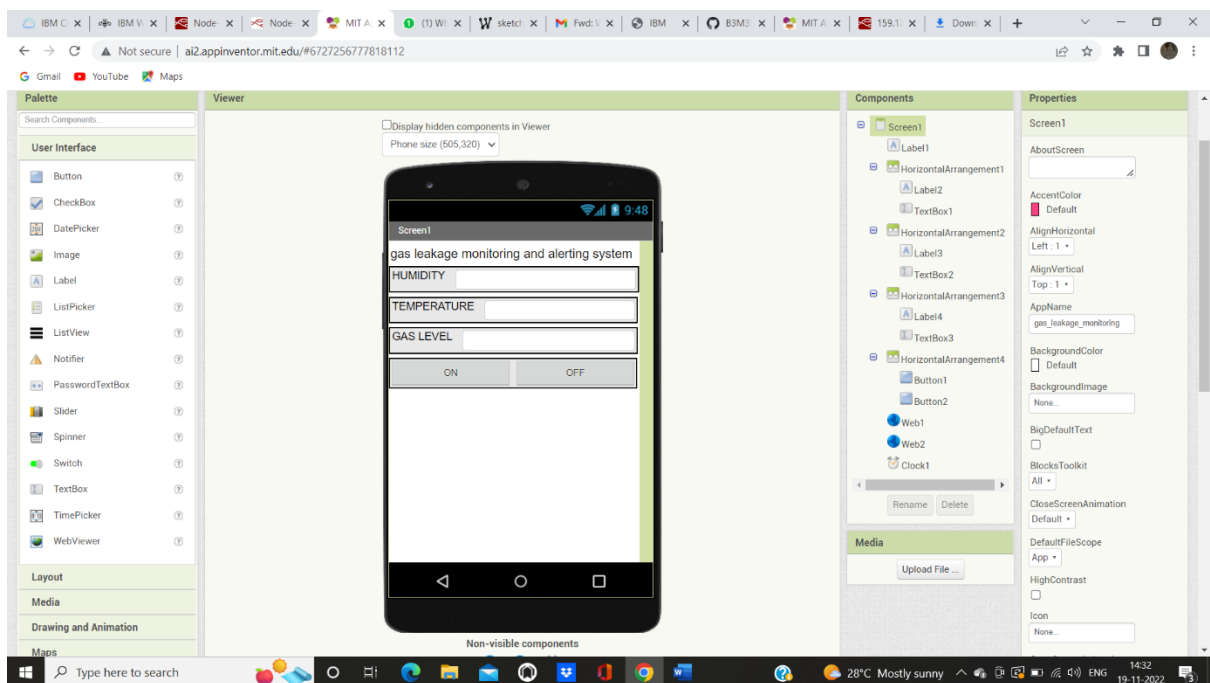
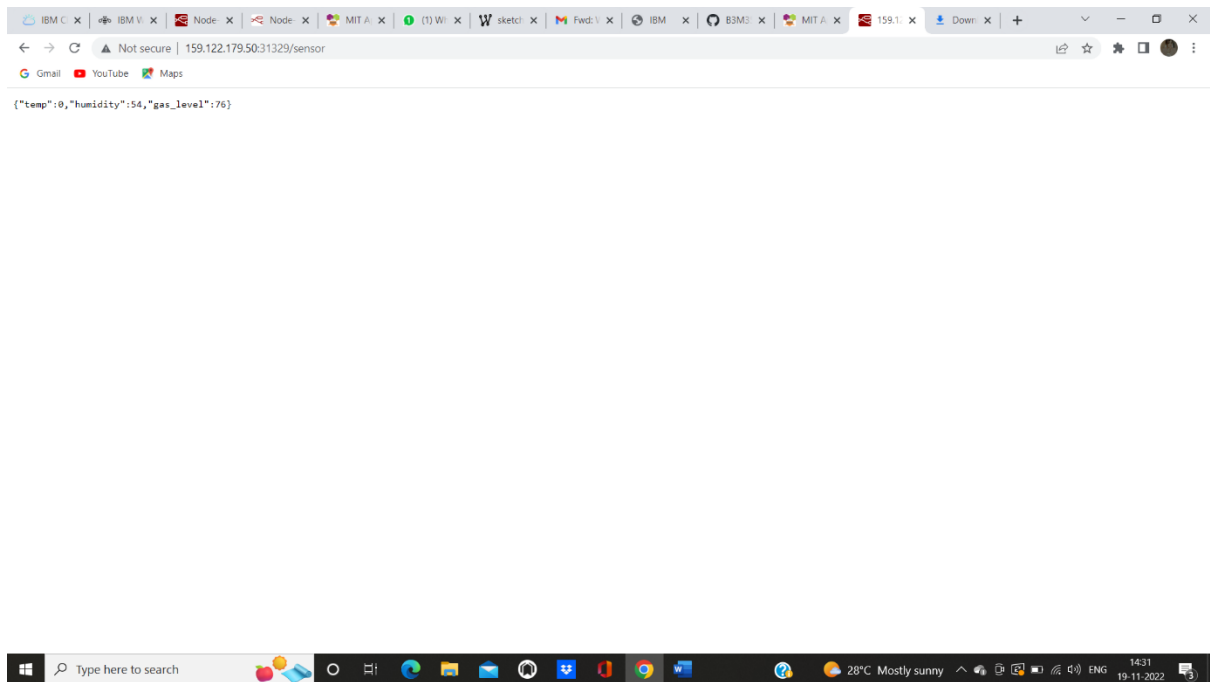
humidity: 18 percentage

temp: 92 celsius

gas: 47

Sprint 1 (1).pdf, Show all

Windows taskbar: Type here to search, 28°C Mostly sunny, 11:02 19-11-2022



MIT APP INVENTOR

gas_leakage_monitoring

Screen1

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - HorizontalArrangemen
 - Label2
 - TextBox1
 - HorizontalArrangemen
 - Label3

Viewer

when Clock1.Timer

do

- set Web1.Uri to http://159.122.179.50:31329/sensor
- call Web1.Get

when Web1.GotText

url responseCode responseType responseContent

do

- set Label2.Text to look up in pairs key humidity pairs call Web1.JsonTextDecode jsonText get responseContent
- set Label3.Text to look up in pairs key temp pairs call Web1.JsonTextDecode jsonText get responseContent
- set Label4.Text to look up in pairs key gas level pairs call Web1.JsonTextDecode jsonText get responseContent

Show Warnings

SPRINT-4 (1).pdf

SPRINT-4.pdf

Show all

Type here to search

28°C Mostly sunny

18:39 19-11-2022

MIT APP INVENTOR

gas_leakage_monitoring

Screen1

Blocks

- Built-in
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Dictionaries
 - Colors
 - Variables
 - Procedures
- Screen1
 - Label1
 - HorizontalArrangemen
 - Label2
 - TextBox1
 - HorizontalArrangemen
 - Label3

Viewer

set Label4.Text to look up in pairs key gas level pairs call Web1.JsonTextDecode jsonText get responseContent

when Button1.Click

do

- set Web1.Uri to http://159.122.179.50:31329/red/sensor?comment=ON
- call Web1.Get

when Button2.Click

do

- set Web2.Uri to http://159.122.179.50:31329/red/sensor?comment=OFF
- call Web2.Get

Show Warnings

SPRINT-4 (1).pdf

SPRINT-4.pdf

Show all

Type here to search

28°C Mostly sunny

18:39 19-11-2022

