

# TPRHO : GESTION DE LA PISCINE EN COURS...

**Objectifs :** Etre capable de créer une IHM permettant de superviser un local technique.

## 1. CAHIER DES CHARGES

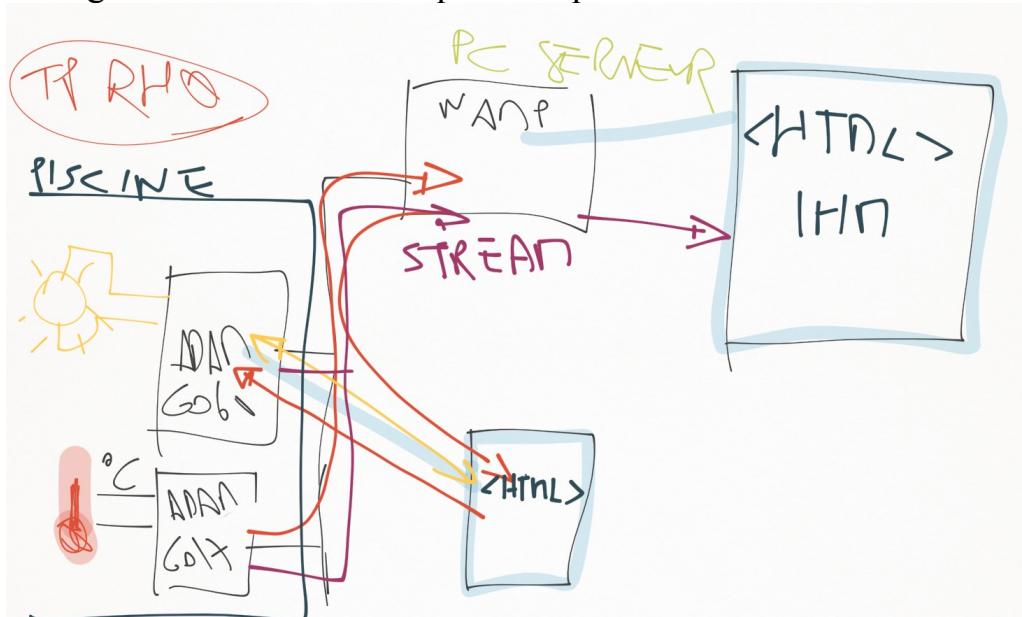
A partir d'une IHM du local piscine existante on souhaite adapter les valeurs afficher.

L'IHM de départ permet de contrôler l'allumage et l'extinction de l'éclairage du bassin d'une piscine.

La température de l'eau n'est pas affichée en temps réel : actuellement la valeur est fixe.



Le schéma suivant indique les flux entre les différents éléments constituant le système de gestion du local technique de la piscine :



Comme nous utilisons 2 modules ADAM, afin de satisfaire le CdC deux méthodes sont envisagées :

### **1.1. méthode 1 :**

Héberger la page sur l'ADAM et aller chercher sur la base de donnée la valeur de la tempPiscine.

### **1.2. méthode 2 :**

Héberger la page sur le Pcserveur. Nécessite que le module ADAM envoie et lise les données sur la base : tempPiscine et etatLumiere pour controler sa lumière.

### **1.3. Méthode 3 :**

utiliser les librairie modbus/tcp en php.

Cette solution semble la meilleure.

### **1.4. Méthode 4 :**

utiliser nodered qui permet facilement de créer une communication modbus.

Il faut juste trouver un moyen d'avoir une IHM plus sympa !

## **2. TRAVAIL DEMANDÉ**

A partir du fichier "ADAM6060piscine simple .html" (cf site stssnsb.free.fr/Tpsystèmes),

Modifier le code afin d'afficher la température de l'eau de la piscine en provenance de la base de donnée : TPRHO, table\_technique, variable tempPiscine.

### **2.1. Toutes méthodes**

Tester la commande de l'éclairage. En cas de non fonctionnement : réaliser le l'installation du module ADAM6060 et du module 6017 (simuler la température ou utiliser un LM35)

Lancerez Wamp

Vérifieriez la présence de la base de donnée (tprho), de la table table\_technique et de sa structure conforme. Sinon vous la créerez.

### **2.2. Méthode 1 :**

A partir d'exemple fournit (db\_jardibox) vous modifieriez le code de la page "ADAM6060piscine simple.html" afin de satisfaire au cahier des charges.

### **2.3. Méthode 2 :**

Créer les fichiers php et éventuellement une base de donnée (optionnelle : si utilisation des dernières données reçues par streaming).

### **2.4. Méthode 3 :**

Créer les php permettant de recevoir du modbus/TCP et d'en envoyer vers le serveur ADAM.

### **2.5. Méthode 4 :**

Installer Node.JS et node-Red.

A partir du TP : IHM express avec Noed-Red prendre en main la programmation d'un flux.

## 3. ANNEXES

### 3.1. Structure de la base

### 3.2. IHM ADAM6060piscine simple.html

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0, user-scalable=no, minimum-scale=1.0, maximum-scale=1.0" />
<style type="text/css">
body {background-color:#FFFFFF;}
td.Fix {text-align:center;vertical-align:bottom;width:52px;}
td {text-align:center;vertical-align:bottom;}
img {height:32px;width:32px;margin-left:auto;margin-right:auto;}
button
{
-webkit-border-radius: 0;
width:200px;
height:36px
}
</style>
</head>
<body>
<center>
<header>
<h1>
    Sembat beach hotel
<br> GESTION de la PISCINE
</h1>
</header>
<br>
<!-- SVG -->
<svg
    xmlns:dc="http://purl.org/dc/elements/1.1/"
    xmlns:cc="http://creativecommons.org/ns#"

```

```

xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:svg="http://www.w3.org/2000/svg"
xmlns="http://www.w3.org/2000/svg"
xmlns:sodipodi="http://sodipodi.sourceforge.net/DTD/sodipodi-0.dtd"
xmlns:inkscape="http://www.inkscape.org/namespaces/inkscape"
width="456.16174"
height="180.68047"
viewBox="0 0 456.16174 180.68046"
id="svg2"
version="1.1"
inkscape:version="0.91 r13725"
sodipodi:docname="piscine.svg">
<defs
  id="defs4" />
<sodipodi:namedview
  id="base"
  pagecolor="#ffffff"
  bordercolor="#666666"
  borderopacity="1.0"
  inkscape:pageopacity="0.0"
  inkscape:pageshadow="2"
  inkscape:zoom="0.63573941"
  inkscape:cx="228.08087"
  inkscape:cy="90.340235"
  inkscape:document-units="px"
  inkscape:current-layer="layer1"
  showgrid="false"
  inkscape:window-width="786"
  inkscape:window-height="569"
  inkscape:window-x="-21"
  inkscape:window-y="56"
  inkscape:window-maximized="1"
  fit-margin-top="0"
  fit-margin-left="0"
  fit-margin-right="0"
  fit-margin-bottom="0"
  units="px" />
<metadata
  id="metadata7">
<rdf:RDF>
  <cc:Work
    rdf:about="">
    <dc:format>image/svg+xml</dc:format>
    <dc:type
      rdf:resource="http://purl.org/dc/dcmitype/StillImage" />
    <dc:title></dc:title>
  </cc:Work>
</rdf:RDF>
</metadata>
<g
  inkscape:label="Calque 1"
  inkscape:groupmode="layer"
  id="layer1"
  transform="translate(-42.311887,-448.9866)">
<rect
  style="opacity:0.98000004;fill:#0000ff;fill-opacity:1;stroke:#000000;stroke-width:1.62928581;stroke-linecap:round;stroke-linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1"
  id="piscine_eau"
  width="374.98663"
  height="69.553749"
  x="81.116379"
  y="488.17749"
  inkscape:label="#rect4136" />

<rect
  style="opacity:0.98000004;fill:#ffCC13;fill-opacity:1;stroke:#000000;stroke-width:1.62928581;stroke-linecap:round;stroke-linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1"
  id="bordgauche"
  width="41.321133"
  height="95.733452"
  x="43.12653"
  y="461.064"
  inkscape:label="#rect4138" />

```

```

<rect
      style="opacity:0.98000004;fill:#ffCC13;fill-opacity:1;stroke:#000000;stroke-width:1.62928581;stroke-linecap:round;stroke-
      linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1"
      id="borddroit"
      width="41.321133"
      height="95.733452"
      x="456.33786"
      y="460.50085"
      inkscape:label="#rect4138-0" />
<rect
      style="opacity:0.98000004;fill:#d40000;fill-opacity:1;stroke:#000000;stroke-width:1.62928581;stroke-linecap:round;stroke-
      linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1"
      id="plongoir"
      width="110.68161"
      height="9.0102072"
      x="44.602283"
      y="449.80124"
      inkscape:label="#rect4155" />

<g
  id="g4234"
  transform="matrix(0.46625335,0,0,0.35583821,33.162805,279.99306)">
<text
  inkscape:label="#text4157"
  sodipodi:linespacing="100%"
  id="text_temp"
  y="662.82599"
  x="413.17261"
  style="font-style:normal;font-weight:normal;font-size:70px;line-height:100%;font-family:sans-serif;letter-spacing:0px;word-
  spacing:0px;fill:#000000;fill-opacity:1;stroke:none;stroke-width:1px;stroke-linecap:butt;stroke-linejoin:miter;stroke-opacity:1"
  xml:space="preserve"><tspan
  y="662.82599"
  x="413.17261"
  id="tspan4159"
  sodipodi:role="line">33.4</tspan></text>
<text
  inkscape:label="#text4161"
  sodipodi:linespacing="100%"
  id="text_C"
  y="666.21576"
  x="553.89856"
  style="font-style:normal;font-weight:normal;font-size:70px;line-height:100%;font-family:sans-serif;letter-spacing:0px;word-
  spacing:0px;fill:#000000;fill-opacity:1;stroke:none;stroke-width:1px;stroke-linecap:butt;stroke-linejoin:miter;stroke-opacity:1"
  xml:space="preserve"><tspan
  y="666.21576"
  x="553.89856"
  id="tspan4163"
  sodipodi:role="line">°C</tspan></text>
</g>

<g
  id="g4224"
  transform="matrix(0.46625335,0,0,0.35583821,13.297242,513.24116)">
<rect
  inkscape:label="#rect4199"
  onclick="allumerSpot()"
  y="155.1792"
  x="289.21161"
  height="72.103813"
  width="471.95224"
  id="rect_btAllumer"
  style="opacity:0.98000004;fill:#13FFFF;fill-opacity:1;stroke:#5b4228;stroke-width:4;stroke-linecap:round;stroke-
  linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1" />
<text
  sodipodi:linespacing="100%"
  id="text4216"
  y="209.10223"
  x="408.92798"
  style="font-style:normal;font-weight:normal;font-size:50px;line-height:100%;font-family:sans-serif;letter-spacing:0px;word-
  spacing:0px;fill:#000000;fill-opacity:1;stroke:none;stroke-width:1px;stroke-linecap:butt;stroke-linejoin:miter;stroke-opacity:1"
  xml:space="preserve"><tspan
  y="209.10223"
  x="408.92798"

```

```

    id="tspan4218"
    sodipodi:role="line">>ALLUMER</tspan></text>
</g>
<g
  id="g4229"
  transform="matrix(0.46625335,0,0,0.35583821,22.465963,289.32298)">
<rect
  inkscape:label="#rect4199"
  onclick="eteindreSpot()"
  y="882.35358"
  x="269.54694"
  height="72.103813"
  width="471.95224"
  id="rect_btnEteindre"
  style="opacity:0.98000004;fill:#0000FF;fill-opacity:1;stroke:#5b4228;stroke-width:4;stroke-linecap:round;stroke-linejoin:round;stroke-miterlimit:4;stroke-dasharray:none;stroke-dashoffset:0;stroke-opacity:1" />
<text
  sodipodi:linespacing="100%"
  id="text4220"
  y="936.63055"
  x="379.25354"
  style="font-style:normal;font-weight:normal;font-size:50px;line-height:100%;font-family:sans-serif;letter-spacing:0px;word-spacing:0px;fill:#000000;fill-opacity:1;stroke:none;stroke-width:1px;stroke-linecap:butt;stroke-linejoin:miter;stroke-opacity:1"
  xml:space="preserve"><tspan
    style="fill:#FFFFFF;fill-opacity:1"
    y="936.63055"
    x="379.25354"
    id="tspan4222"
    sodipodi:role="line">>ETEINDRE</tspan></text>
</g>
</g>
</svg>
<br>
<!-- Fin SVG --&gt;

&lt;footer&gt;
&lt;hr&gt;
Version v20170704_1519&lt;br&gt;
Copyright &amp;copy;2017 by &lt;a target="_blank" href="stssnsb.free.fr"&gt;SB.&lt;/a&gt;
&lt;/footer&gt;
&lt;/center&gt;
&lt;/body&gt;

&lt;script&gt;

&lt;!--sb --&gt;
var appuiAllumer;
var appuiEteind;
var spotAllume;

function allumerSpot(){
    appuiAllumer=1;
    appuiEteind=0;
    document.getElementById("piscine_eau").setAttribute("style","fill:#13FFFF");//change couleur du spot
    pageOnApplyClick();//envoi du post vers serveur
}

function eteindreSpot(){
    appuiEteind=1;
    appuiAllumer=0;
    document.getElementById("piscine_eau").setAttribute("style","fill:#0000FF");//allume la Led etat
    pageOnApplyClick();//envoi du post vers serveur
}
&lt;!--fin sb --&gt;

function pageOnApplyClick()//mod sb
{
    var szpostData = "";
    var xmlhttp = null;

    //sb envoi vers le serveur pour activer DO0
</pre>

```

```
if (appuiAllumer==1) szpostData+="DO0=1";
if (appuiEteind==1) szpostData+="DO0=0"
try
{
    if (window.XMLHttpRequest)
        {// code for IE7+, Firefox, Chrome, Opera, Safari
            xmlhttp=new XMLHttpRequest();
        }
    else
        {// code for IE6, IE5
            xmlhttp=new ActiveXObject("Microsoft.XMLHTTP");
        }
    xmlhttp.onreadystatechange=function()
    {
        if (xmlhttp.readyState==4)
        {
            if (xmlhttp.status==200)
            {
                xmlDoc=xmlhttp.responseXML;
                if (xmlDoc.documentElement.attributes[0].nodeValue != "OK")
                    alert("Set DO failed!");
                xmlDoc.documentElement.attributes[0].nodeValue;
            }
            else
                alert(" DoOutErr:" + xmlhttp.status + "!");
        }
    }
    xmlhttp.open( "POST", "digitaloutput/all/value", true );
    xmlhttp.send(szpostData);
}
catch(e)
{
    alert(e);
}
}

</script>
</html>
```

### 3.3. Module ADAM6060/6017

Voir NAS STSSN.

## 4. CORRECTION

### 4.1. Méthode 4 : Solution 1 : IHM avec Node-RED

Node-RED permet en plus d'utiliser des nœuds existants d'utiliser un nœud HTML permettant de créer son propre code.

A l'aide du nœud "function" il est possible de traiter les données.

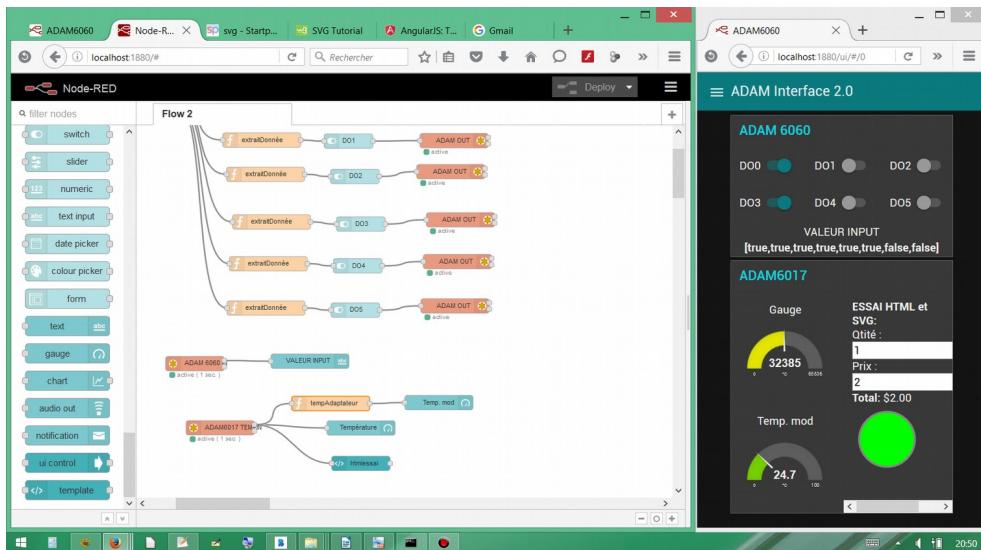


Illustration 1: Exemple de flow Node-RED associé aux module ADAM 6060 et 6017

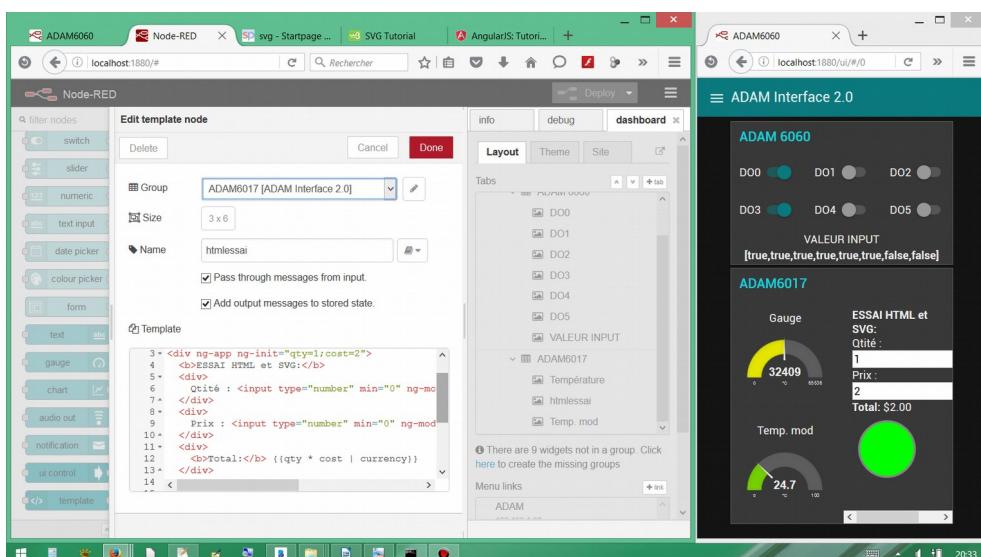


Illustration 2: Exemple de code HTML :

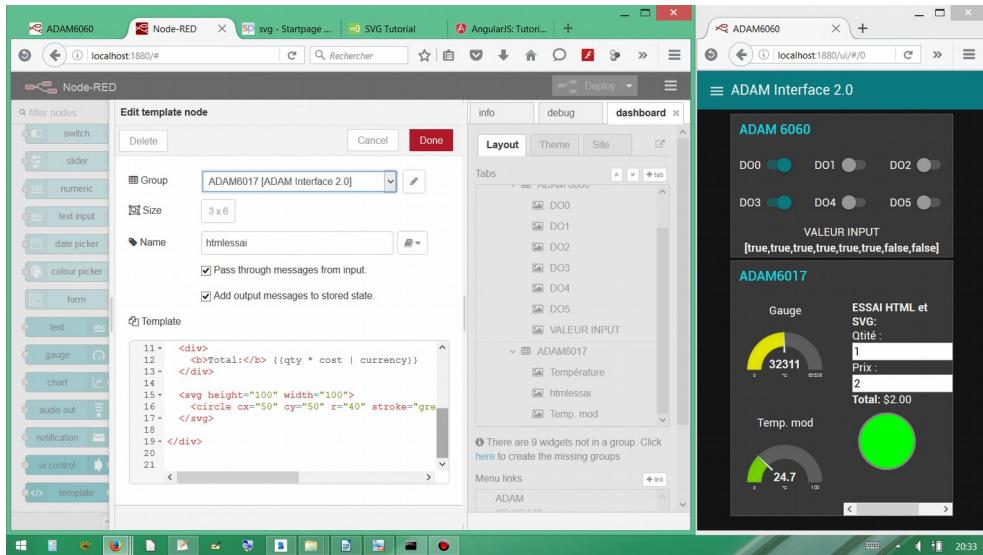


Illustration 3: Exemple de code SVG (affichage du cercle vert) :

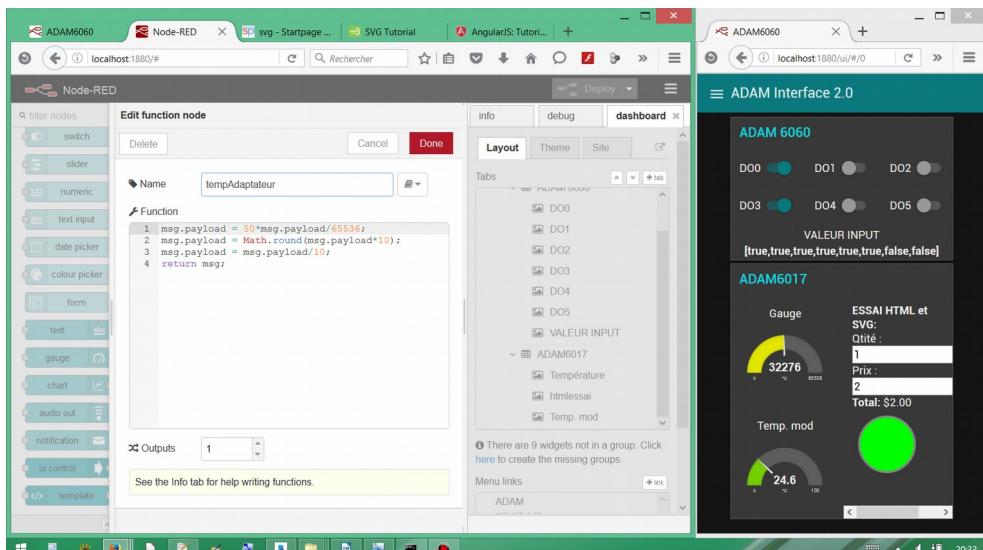
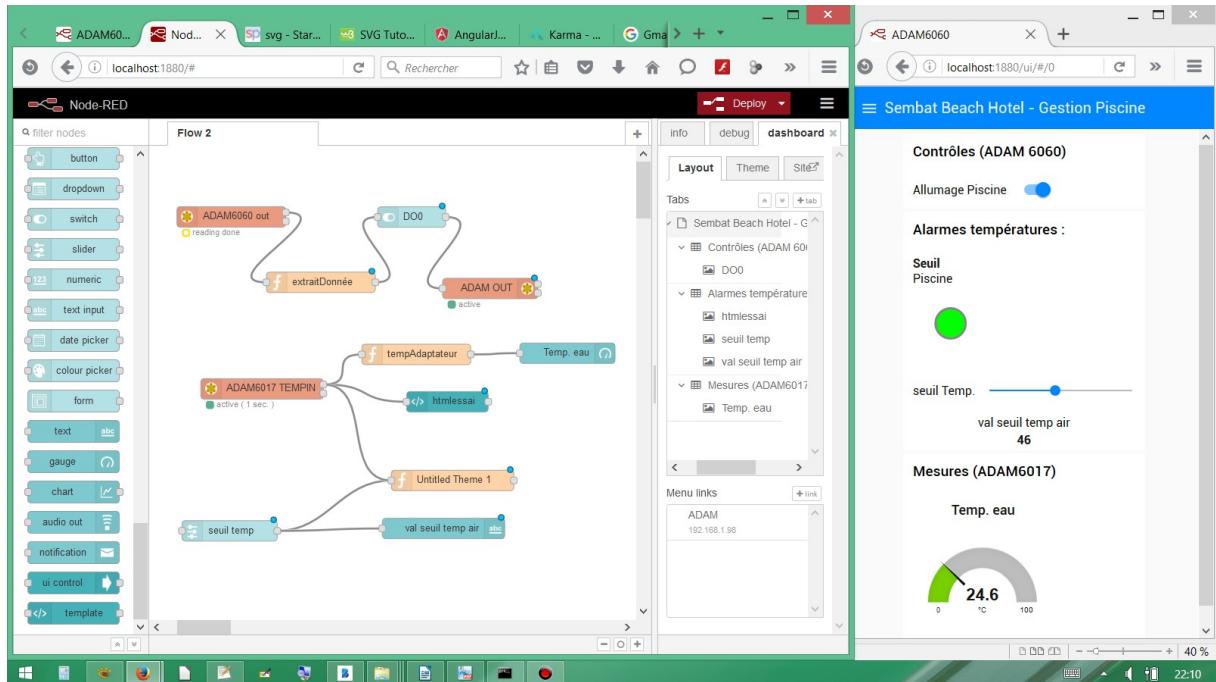


Illustration 4: Exemple de fonction : (adaptation de la mesure)

## 4.2. Méthode 4 : Solution 2 avec changement de thème



```

        },
        {
          "id": "c45bea63.c33528",
          "type": "modbus-write",
          "z": "9d8d75ff.0746e",
          "name": "ADAM OUT",
          "showStatusActivities": false,
          "showErrors": false,
          "unitid": "",
          "dataType": "Coil",
          "adr": "16",
          "quantity": "1",
          "rate": "1",
          "rateUnit": "s",
          "server": "55a5591c.d1174",
          "x": 631.041711807251,
          "y": 209.91664123535156,
          "wires": [
            []
          ]
        },
        {
          "id": "833dc7a.51f7b8",
          "type": "modbus-read",
          "z": "9d8d75ff.0746e",
          "name": "ADAM6017 TEMPIN",
          "showStatusActivities": false,
          "showErrors": false,
          "unitid": "",
          "dataType": "HoldingRegister",
          "adr": "7",
          "quantity": "1",
          "rate": "1",
          "rateUnit": "s",
          "server": "66d7c351.886604",
          "x": 295.85717734375,
          "y": 357.1428871154785,
          "wires": [
            [
              "5c47d1ae.82f5b8"
            ],
            []
          ]
        },
        {
          "id": "59dc6558.aa3c44",
          "type": "function",
          "z": "9d8d75ff.0746e",
          "name": "extraitDonnée",
          "func": "msg.payload=(msg.payload[0]);\\nreturn msg;",
          "outputs": 1,
          "noerr": 0,
          "x": 382.24998474121094,
          "y": 200.8666639328003,
          "wires": [
            [
              "59dc6558.aa3c44"
            ]
          ]
        },
        {
          "id": "59dc6558.aa3c44",
          "type": "ui_switch",
          "z": "9d8d75ff.0746e",
          "name": "DO0",
          "label": "Allumage Piscine",
          "group": "1b1ef75e.d35891",
          "order": 1,
          "width": "4",
          "height": "1",
          "passthru": false,
          "topic": "",
          "style": "",
          "onvalue": "true",
          "onvalueType": "bool",
          "onicon": "",
          "oncolor": "",
          "offvalue": "false",
          "offvalueType": "bool",
          "officon": "",
          "offcolor": "",
          "x": 515.6249580383301,
          "y": 105.16666412353516,
          "wires": [
            [
              "c45bea63.c33528"
            ]
          ]
        },
        {
          "id": "5c47d1ae.82f5b8",
          "type": "function",
          "z": "9d8d75ff.0746e",
          "name": "tempAdaptateur",
          "func": "msg.payload = 50*msg.payload/65536;\\nmsg.payload = Math.round(msg.payload*10);\\nmsg.payload = msg.payload/10;\\nreturn msg;",
          "outputs": 1,
          "noerr": 0,
          "x": 522.5000152587891,
          "y": 306.59997940063477,
          "wires": [
            [
              "9784f967.16a108"
            ]
          ]
        },
        {
          "id": "9784f967.16a108",
          "type": "ui_gauge",
          "z": "9d8d75ff.0746e",
          "name": "",
          "group": "df616d5b.9a5c08",
          "order": 1,
          "width": "4",
          "height": "4",
          "wires": [
            []
          ]
        }
      ]
    ]
  ]
}

```

```

    "gtype": "gage",
    "title": "Temp. eau",
    "label": "°C",
    "format": "{{{value}}}",
    "min": 0,
    "max": "100",
    "colors": [
        "#00b500",
        "#e6e600",
        "#ca3838"
    ],
    "x": 744.5000305175781,
    "y": 304.79997634887695,
    "wires": []
},
{
    "id": "b51e681e.aed108",
    "type": "ui_slider",
    "z": "9d8d75ff.0746e",
    "name": "seuil_temp",
    "label": "seuil Temp.",
    "group": "ce61c42f.a7ba2",
    "order": 0,
    "width": 0,
    "height": 0,
    "passthru": false,
    "topic": "seuil_temp",
    "min": 0,
    "max": "100",
    "step": 1,
    "x": 298.2334442138672,
    "y": 437.300048828125,
    "wires": [
        [
            "2a7d8dc0.afd0f2"
        ]
    ]
},
{
    "id": "2a7d8dc0.afd0f2",
    "type": "ui_text",
    "z": "9d8d75ff.0746e",
    "group": "ce61c42f.a7ba2",
    "order": 0,
    "width": 0,
    "height": 0,
    "name": "val seuil temp air",
    "label": "val seuil temp air",
    "format": "{{msg.payload}}",
    "layout": "col-center",
    "x": 552.416748046875,
    "y": 430.8056640625,
    "wires": []
},
{
    "id": "55a5591c.d1174",
    "type": "modbus-client",
    "z": "",
    "name": "ADAM6060 192.168.1.98",
    "clienttype": "tcp",
    "bufferCommands": true,
    "stateLogEnabled": false,
    "tcpHost": "192.168.1.98",
    "tcpPort": "502",
    "tcpType": "DEFAULT",
    "serialPort": "/dev/ttyUSB",
    "serialType": "RTU-BUFFERD",
    "serialBaudrate": "9600",
    "serialDatabits": "8",
    "serialStopbits": "1",
    "serialParity": "none",
    "serialConnectionDelay": "100",
    "unit_id": "1",
    "commandDelay": "1",
    "clientTimeout": "1000",
    "reconnectTimeout": "2000"
},
{
    "id": "1b1ef75e.d35891",
    "type": "ui_group",
    "z": "",
    "name": "Contrôles (ADAM 6060)",
    "tab": "61c0211a.ac1e6",
    "order": 1,
    "disp": true,
    "width": "6"
},
{
    "id": "66d7c351.886604",
    "type": "modbus-client",
    "z": "",
    "name": "ADAM6017 192.168.1.97",
    "clienttype": "tcp",
    "bufferCommands": true,
    "stateLogEnabled": false,
    "tcpHost": "192.168.1.97",
    "tcpPort": "502",
    "tcpType": "DEFAULT",
    "serialPort": "/dev/ttyUSB",
    "serialType": "RTU-BUFFERD",
    "serialBaudrate": "9600",
    "serialDatabits": "8",
    "serialStopbits": "1",
    "serialParity": "none",
    "serialConnectionDelay": "100",
    "unit_id": "1",
    "commandDelay": "1",
    "clientTimeout": "1000",
    "reconnectTimeout": "2000"
},
{
    "id": "df16d5b.9a5c08",
    "type": "ui_group",
    "z": "",
    "name": "Mesures (ADAM6017)",
    "tab": "61c0211a.ac1e6",
    "order": 3,
    "disp": true,
    "width": "6"
},
{
    "id": "ce61c42f.a7ba2",
    "type": "ui_group",
    "z": "",
    "name": "Alarmes températures :",
    "tab": "61c0211a.ac1e6",
    "order": 2,
    "disp": true,
    "width": "6"
},
{
    "id": "61c0211a.ac1e6",
    "type": "ui_tab",
    "z": "",
    "name": "Sembat Beach Hotel - Gestion Piscine",
    "icon": "home",
    "order": 1
}
]

```

