C STYLE CODE

```
// -- *********************************************************************
// -- Archivo : sensor.ino
// -- Proyecto : Campus-party FI-WARE
// -- Fecha : junio 2014
// -- Copyright 2014 Eduardo R., Josue S., Armando V., Victor G., Ricardo B.
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// -- *********************************************************************

// Libraries
// Library  Process.h, enables to run Linux processes on the Atheros AR9331
// processor.
#include <Process.h>

// Variables declaration.
// Variable Trigger enables and marks the beginning of the 8 cycle sonic burst.
// Variable Echo, gets the returned ultrasonic signal.
const int Trigger= A0;
const int Echo= A2;

// Settings
// In setup(), start serial communication for debugging purposes, and turn the
// built-in LED on pin 13 high while Bridge begins. Bridge.begin() is blocking,
// and should take about 2 seconds to complete. Once Bridge starts up, turn the
// LED off. Serial.begin() start serial communication for monitoring the data
// sent. pinMode set Trigger as an output signal and Echo as an input signal.
void setup() {
      Bridge.begin();
      Serial.begin(9600);
      while (!Serial);
      pinMode(Trigger,OUTPUT); // Trigger como salida
      pinMode(Echo,INPUT); // Echo como entrada
}

// Main loop process.
void loop() {
      // The bottom block create a single pulse with a 2 microseconds
      // of duty cycle
      digitalWrite(Trigger, LOW);
      delayMicroseconds(2);
      digitalWrite(Trigger, HIGH);
      delayMicroseconds(5);
      digitalWrite(Trigger, LOW);
      // Functions that calculate the distance
      long time= pulseIn(Echo,HIGH);
      long distmm= funcionDistancia(time);

      // Serial communication.
      Serial.print("dist ");
      Serial.print(distmm);
      Serial.println(" cm");

      // The following lines describe the process that make possible the
      // communication with the Atheros AR9331 Linux processor.
      Process p;
      p.begin("/root/project/updatedatavalue.sh");
      p.addParameter(String(distmm));
      p.run();
      while( p.running());
      while( p.available()) {
            int value=p.parseInt();
            if ( value == 200 ) {
                  Serial.print("service ");
                  Serial.println(value);
                  }
            else
                  Serial.println("service error!");
            break;
      }
      Serial.flush();
      delay(1000);
}

// Mathematical operation that calculates the distance.
long funcionDistancia(long t)
{
      long distance= (t/29)/2;
      return distance;
}
```

BASH CODE

```
# -- *********************************************************************
# -- Archivo : updatedatavalue.sh
# -- Proyecto : Campus-party FI-WARE
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# -- *********************************************************************

#!/bin/bash

# Getting sensor data
data=$1
#echo sensor data: $data

# Getting the line of the first appearance of value string
first=`grep -n "value" /root/test/sensor.json | head -n 1 | cut -d':' -f 1`
firstt=`echo $first\c`
#echo first line value: $firstt

# String to use in grep
str="\"value\" : $data"
#echo sed string: $str

# Copying template sensor data
cp /root/test/sensor.json /root/project/sensor.json

# Changing the first value argument
sed -i "$firstt\\$str" /root/project/sensor.json

# Udating the sensor data and getting the right code 200
string=`curl 130.206.82.44:1026/NGSI10/updateContext -s -S --header 'Content-Type:
application/json' --header 'Accept: application/json' -d
@/root/project/sensor.json | grep -w 'code' | cut -d'"' -f 4`
echo $string
```

HTML CODE

```
</ -- ******************************************************************* >
</ -- Archivo : index.html >
</ -- Proyecto : Campus-party FI-WARE >
</ -- Fecha : junio 2014 >
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</ -- ******************************************************************* >
<!DOCTYPE html>
<html>
  <head>
    <script type="text/javascript" src="js/smoothie.js"></script>
    <script type="text/javascript" src="js/sensor.js"></script>
    <script type="text/javascript">


      var sensor = new TimeSeries();
      setInterval(function() {


        Sensor.get(function(response)
                    {

                      var value=JSON.parse(response);

                  console.log(value.contextElement.attributes[0].value);
                      sensor.append(new
Date().getTime(),value.contextElement.attributes[0].value);
                    });


      }, 100);

      function createTimeline()
      {
        var chart = new SmoothieChart();
        chart.addTimeSeries(sensor, { strokeStyle: 'rgba(0, 255, 0, 1)',
fillStyle: 'rgba(0, 255, 0, 0.2)', lineWidth: 4 });
        chart.streamTo(document.getElementById("chart"), 500);
      }

    </script>
  </head>
  <body onload="createTimeline()" style="background-color:#333333">
```

```
    <canvas id="chart" width="800" height="500"></canvas>

  </body>
</html>
<!-- -->
```