**WOT LAB Virtual sensor using Contiki-ng and Cooja**

**ECM1004**

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**Code:**

**Mytemp.h**

#ifndef MYTEMP\_H

#define MYTEMP\_H

struct Sensor {

char name[15];

float value;

};

struct Sensor read\_temperature();

struct Sensor read\_humidity();

struct Sensor read\_carbonmonoxide();

#endif

**Mytemp.c**

#include "mytemp.h"

#include <string.h>

#include <stdlib.h>

float random\_value(float min, float max)

{

float scale = rand() / (float) RAND\_MAX;

return min + scale \* (max - min);

}

struct Sensor read\_temperature()

{

struct Sensor temp;

strncpy(temp.name, "Temperature", 15);

temp.value = random\_value(0, 45);

return temp;

}

struct Sensor read\_humidity()

{

struct Sensor humdidty;

strncpy(humdidty.name, "Humidity", 15);

humdidty.value = random\_value(30, 80);

return humdidty;

}

struct Sensor read\_carbonmonoxide()

{

struct Sensor carbonmonoxide;

strncpy(carbonmonoxide.name, "Carbonmonoxide", 15);

carbonmonoxide.value = random\_value(0 ,99);

return carbonmonoxide;

}

**Demo.c**

#include "contiki.h"

#include "sys/etimer.h" //etimer Event Timer

#include "mytemp.h"

#include <stdio.h>

PROCESS(sensor\_process, "Sensor process");

AUTOSTART\_PROCESSES(&sensor\_process);

static struct etimer timer;

PROCESS\_THREAD(sensor\_process, ev, data)

{

PROCESS\_BEGIN();

printf("Native Sensor\n");

while(1) {

etimer\_set(&timer, CLOCK\_SECOND\*2);

PROCESS\_WAIT\_EVENT\_UNTIL(etimer\_expired(&timer));

struct Sensor temp = read\_temperature();

printf("%s: %.2f\n", temp.name, (double)temp.value);

struct Sensor hum = read\_humidity();

printf("%s: %.2f\n", hum.name, (double)hum.value);

struct Sensor carbonmonoxide = read\_carbonmonoxide();

printf("%s: %.2f\n", carbonmonoxide.name, (double)carbonmonoxide.value);

printf("------------\n");

}

PROCESS\_END();

}

**Makefile:**

CONTIKI\_PROJECT = demo

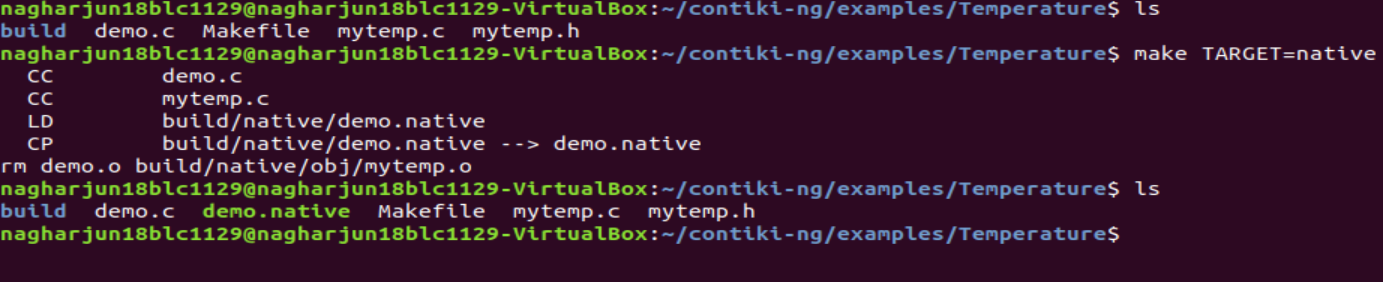
all: $(CONTIKI\_PROJECT)

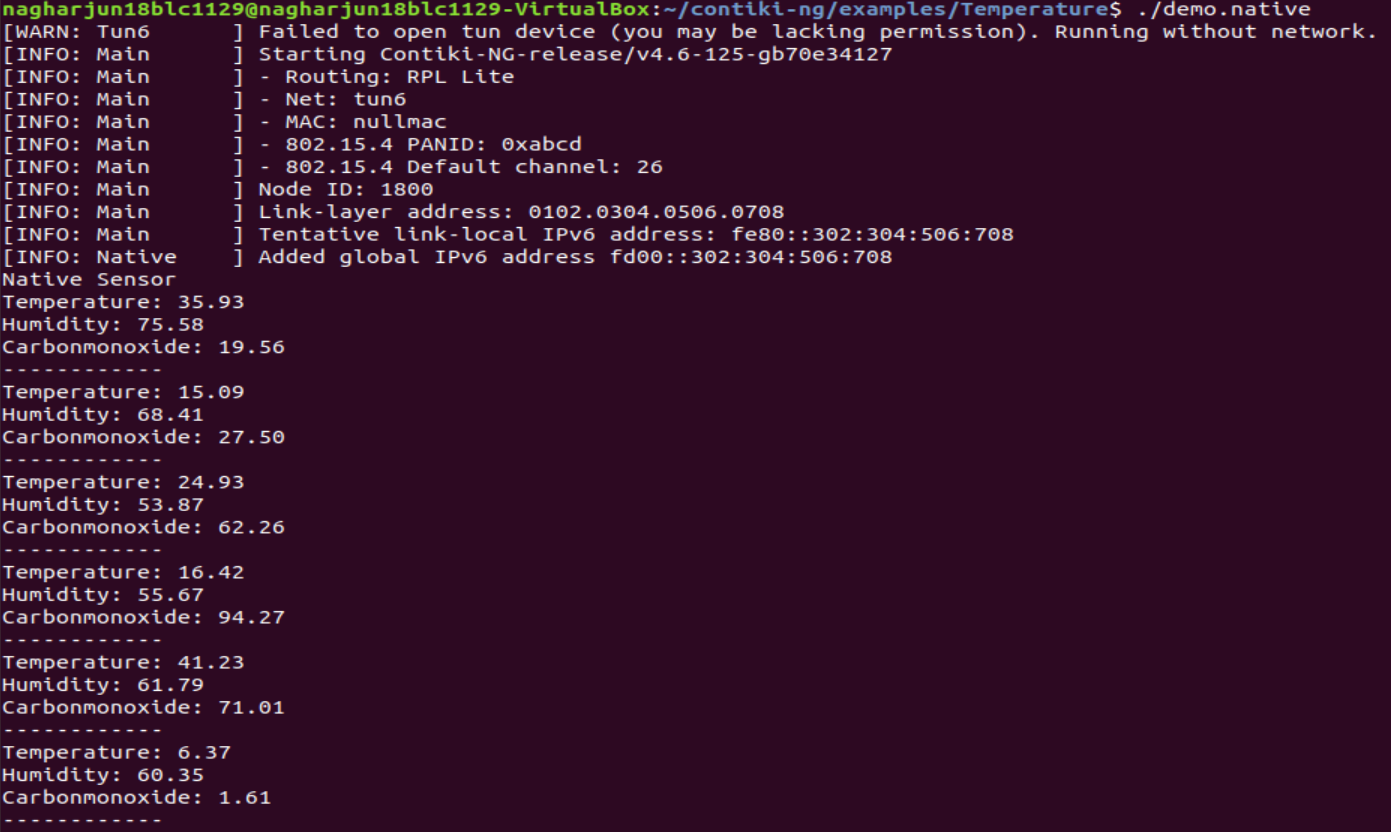
PROJECT\_SOURCEFILES += mytemp.c

CONTIKI = ../../

include $(CONTIKI)/Makefile.include

**OUTPUT:**





**COOJA Simulator:**

