

# Level Monitoring System for a Waste Oil Storage Tank

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# SUMMARY

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3. State of the Art
4. Project Development
5. Conclusion
6. Video

# OBJECTIVES

## Problem

Waste oil recycling companies rely on a inspection team to check container levels and schedule a collection course  
Market competition is tough and process optimization is a must

## Goal

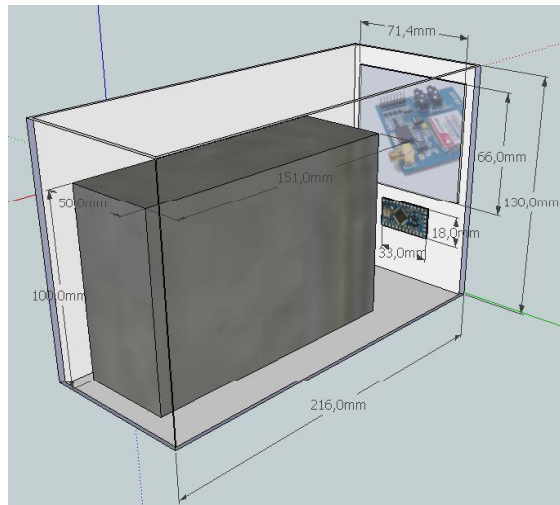
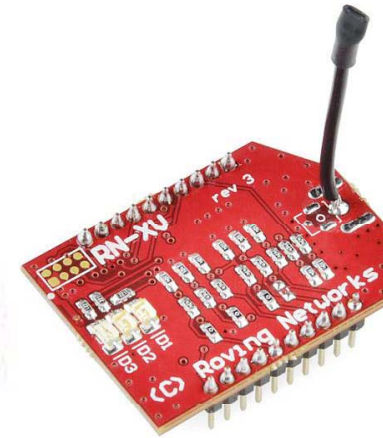
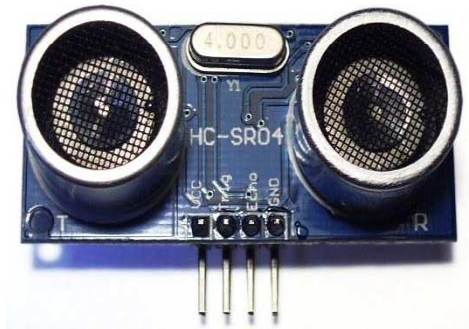
Develop a system that automatically measures the level of waste oil deposited in the container and alerts when it is full

# PROBLEM STATEMENT

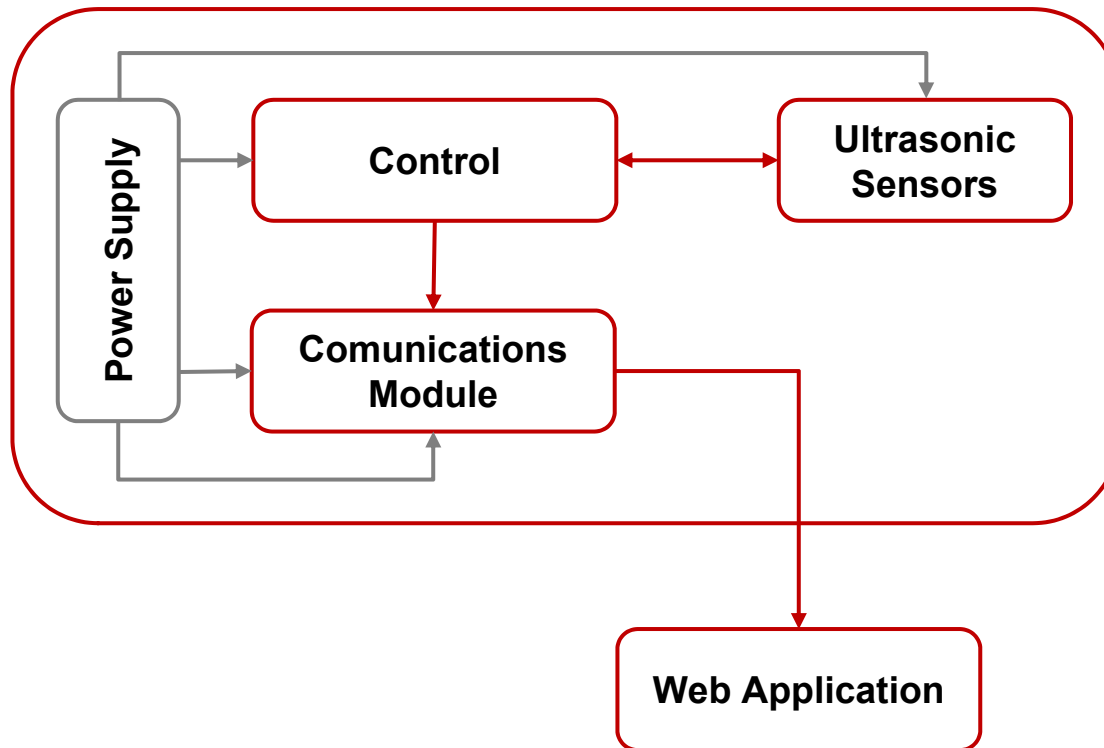
## **Waste oil recycling companies:**

- Do not know when their containers are full
- Lose money checking the containers
- Transportation process is less efficient

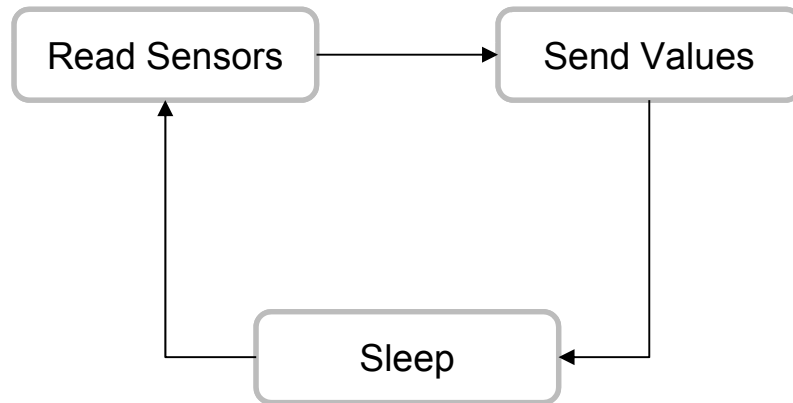
# COMPONENTS



# DEVELOPMENT: ARCHITECTURE



# DEVELOPMENT: CONTROL



...

```
setup() {...}
```

```
loop() {
```

```
    read_sensors();
```

```
    sleep();
```

```
    send_values();
```

```
}
```

...

```
EPS_1 | Arduino 1.0.4
File Edit Sketch Tools Help
EPS_1
#include <avr/sleep.h>
#include <avr/power.h>
#include <avr/wdt.h>

#include <Ultrasonic.h>
#include <WiFlyHQ.h>

#include <SoftwareSerial.h>
SoftwareSerial wifiSerial(2,3);

WiFly wifly;

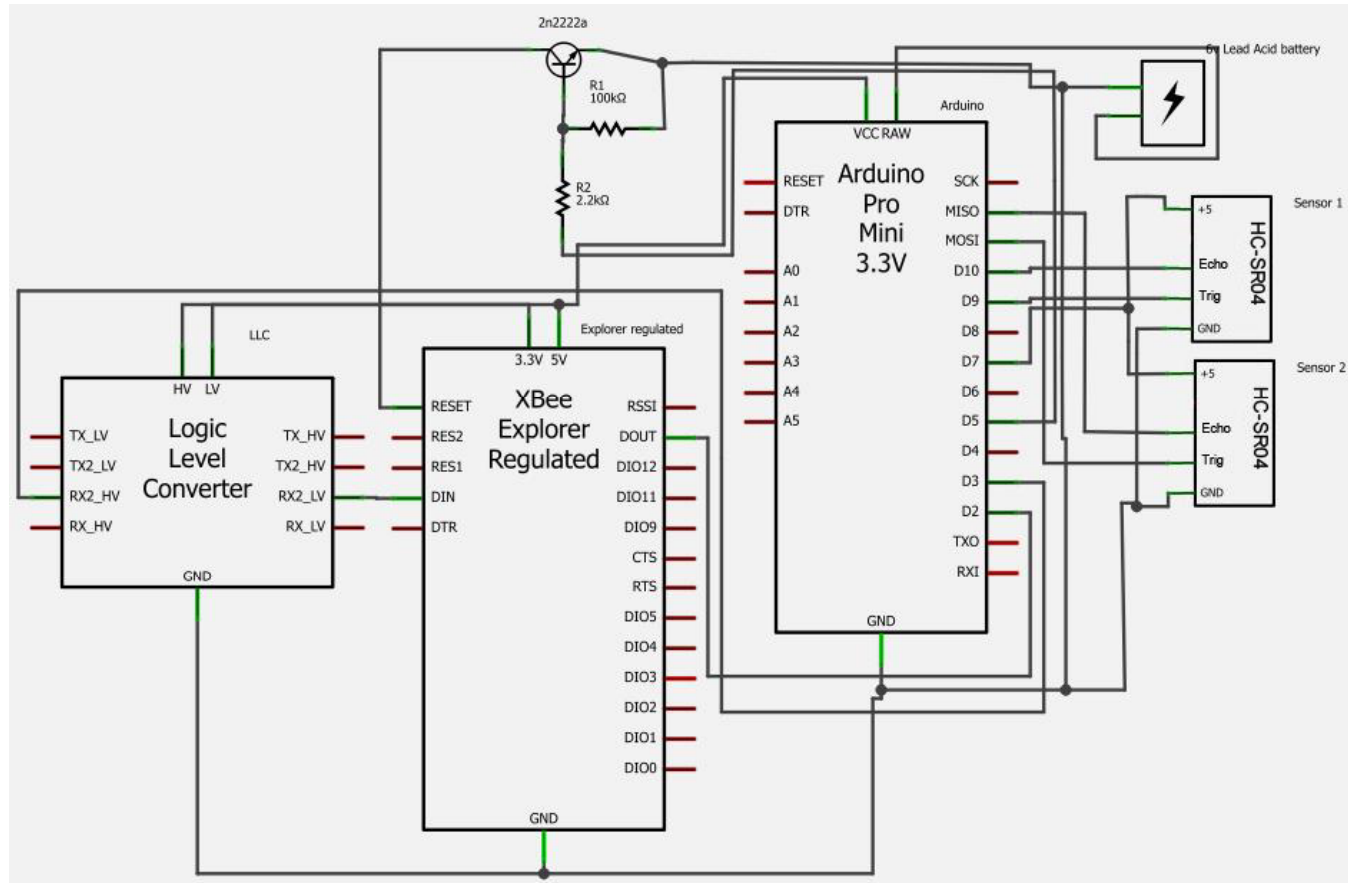
#define TRIGGER_PIN_1 11
#define ECHO_PIN_1 12
#define TRIGGER_PIN_2 9
#define ECHO_PIN_2 10
#define LED_PIN (13)

int counter=0, i=0, f_wdt=1;
int cmMsec_1, cmMsec_2;
long microsec_1=0, microsec_2=0;
char buf[32];

Ultrasonic ultrasonic_1(TRIGGER_PIN_1, ECHO_PIN_1);
Ultrasonic ultrasonic_2(TRIGGER_PIN_2, ECHO_PIN_2);

1 Arduino Uno on COM15
```

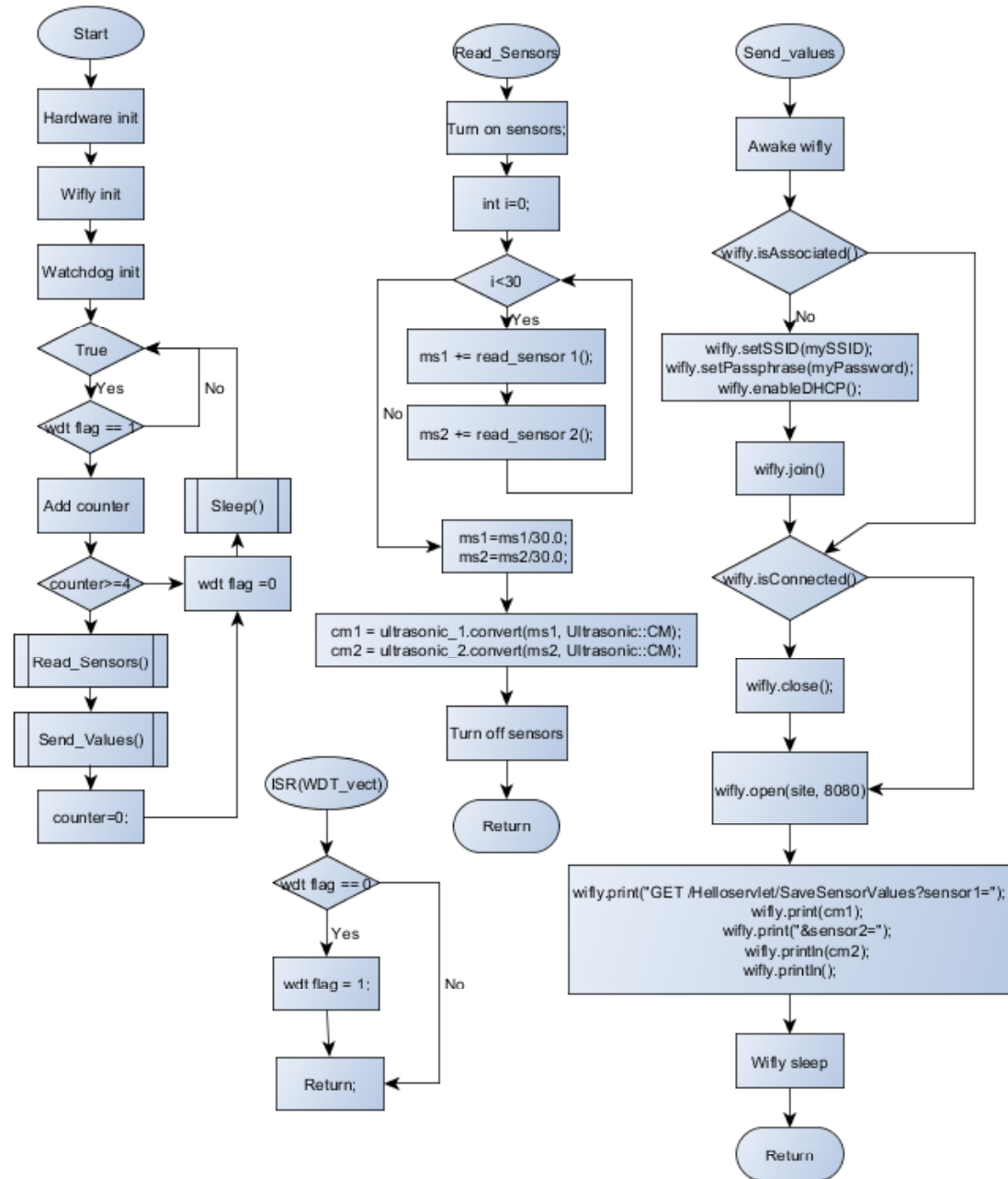
# DEVELOPMENT: SCHEMATICS



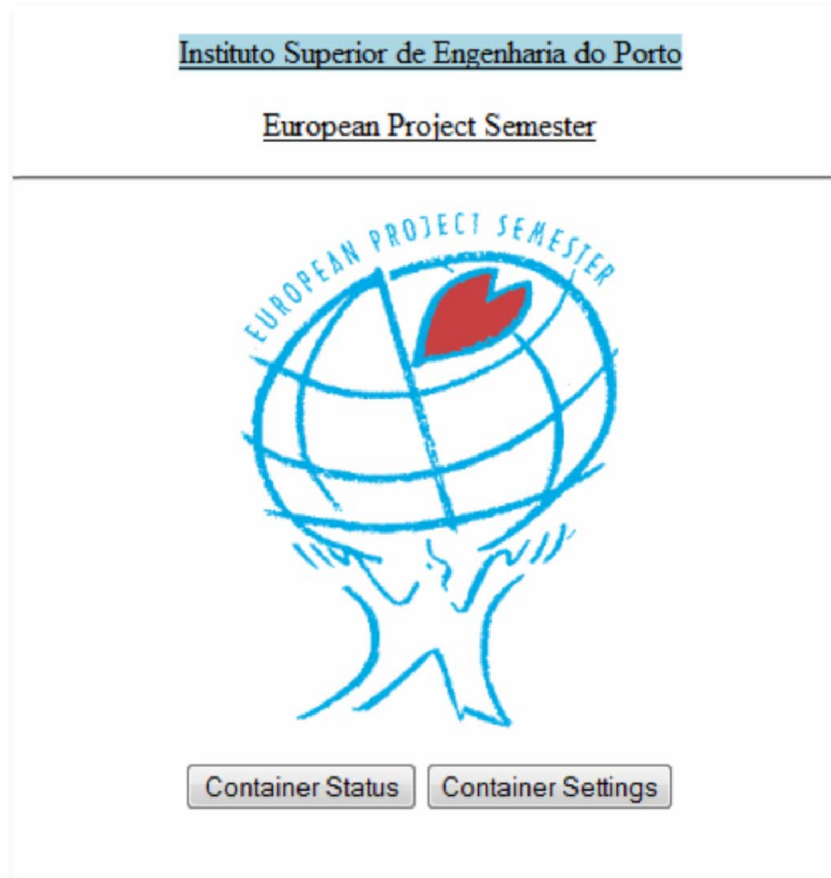


# DEVELOPMENT

## Flowcharts



# DEVELOPMENT: WEB INTERFACE



## Container status

### Settings

Bottom to sensor high: 150 cm  
Max level to sensor high: 29cm

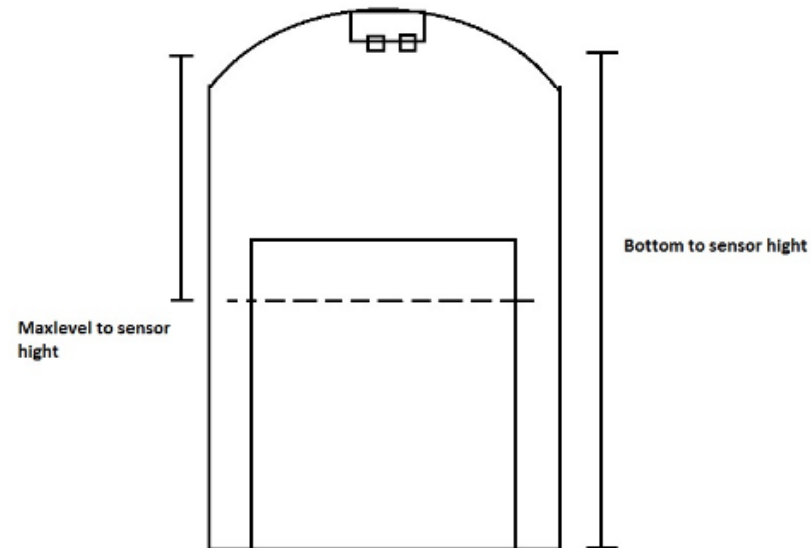
**Sensor values at: 14:15:57 - 12/06/2012**

Sensor 1: 50 cm  
Sensor 2: 51cm

**Container status (%): 82,2%**

Back

# DEVELOPMENT: WEB INTERFACE



## Container settings

Bottom-sensor hight:  cm

Maxlevel-sensor hight:  cm

# CONCLUSIONS

## Achievements:

- Learned to work with people from different fields
- Learned about project management and teamwork
- Managed to make everything work
- Worked as a group
- Acquired new knowledge

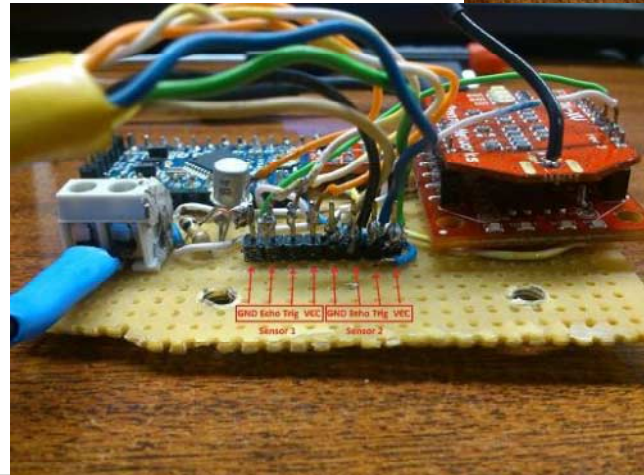
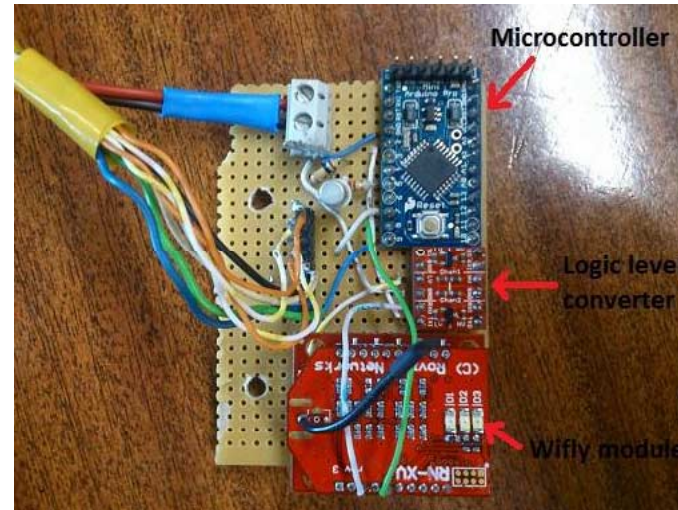


# PHOTOS



2012-06-22 | \*

# PHOTOS



2012-06-22 | \*

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# Questions

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