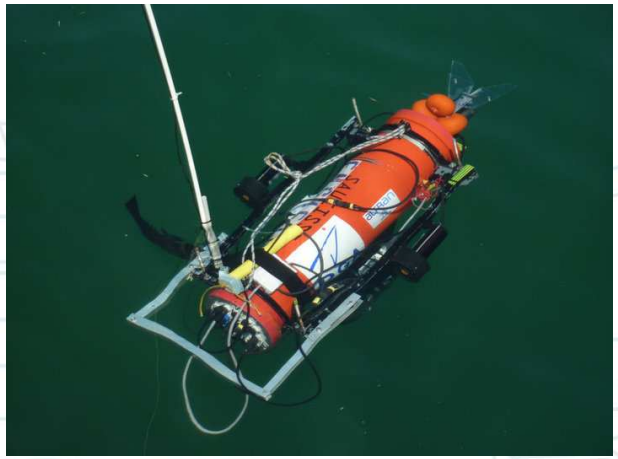
ENSIETA
ÉCOLE NATIONALE SUPÉRIEURE D'INGÉNIEURS

SAUC'ISSE, un robot sous-marin autonome

Fabrice LE BARS et Jan SLIWKA

Introduction

- SAUC'ISSE est un robot sous-marin autonome fabriqué à l'origine pour le concours SAUC-E 2007
- Un 2ème robot, SARDINE, a été fabriqué en 2010 sur le même principe que SAUC'ISSE

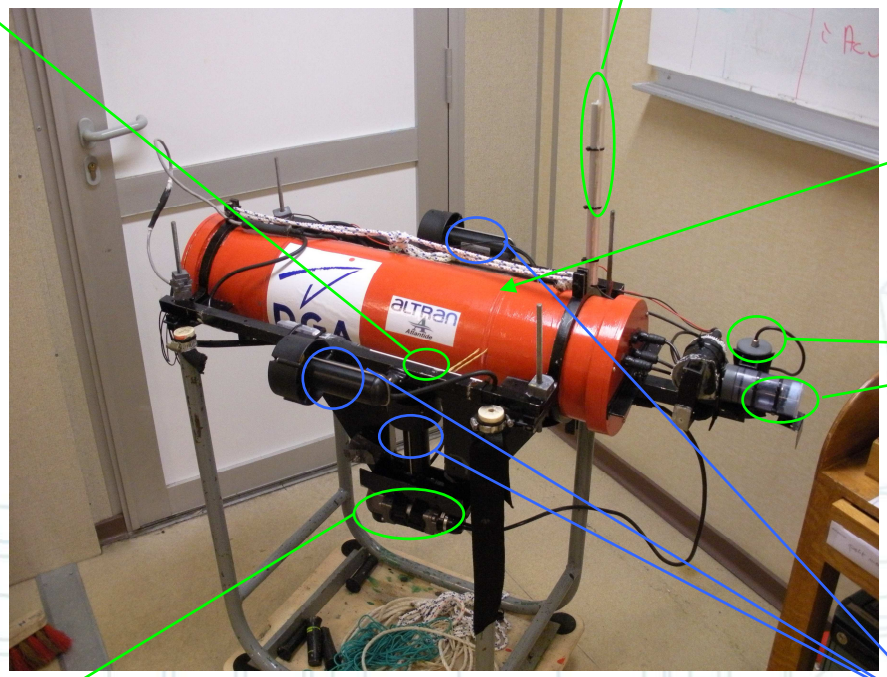


Présentation générale : extérieur

Switch :
It is a home-made watertight switch.

WIFI antenna :
It allows the communication with an external computer (up to a depth of 1 m).

Aluminium tube :
The submarine is based on an aluminium tube of 80 cm with a diameter of 20 cm. It contains the embedded electronics and the batteries. It is closed by 2 aluminium covers with IP68 connectors to connect the external peripherals with the internal devices.

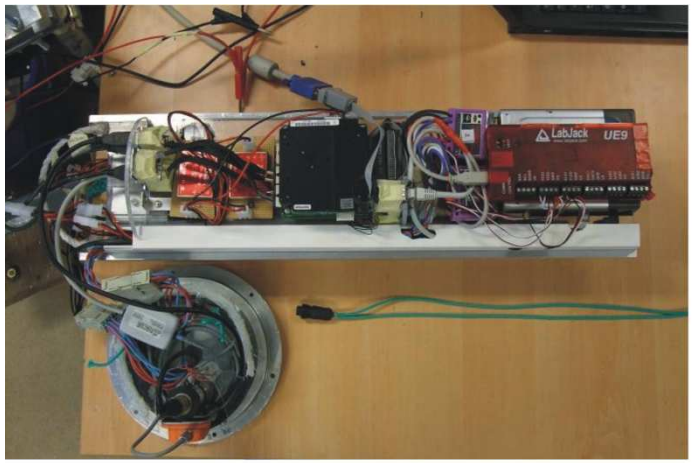


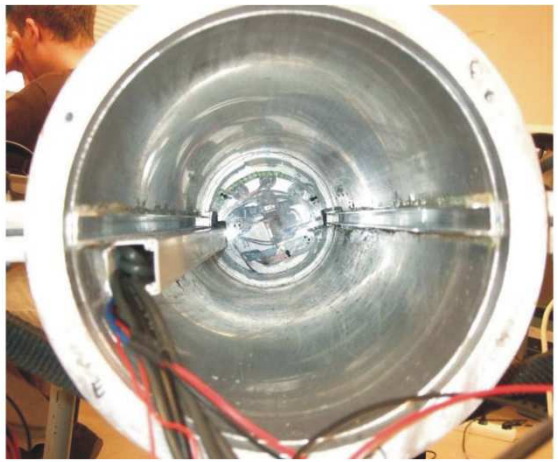
Cameras :
We use 2 watertight cameras to locate different objects in the water.

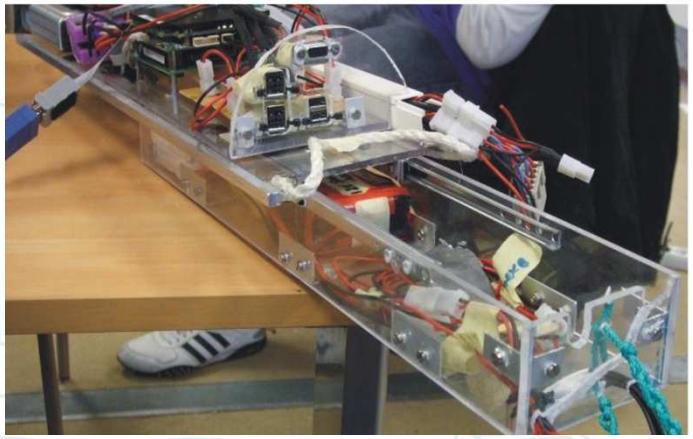
Thrusters :
2 horizontal thrusters handle the speed and the direction of the robot.
1 vertical thruster controls the depth.
The submarine is stable thanks to a heavy keel which is also used to hold the sonar and the vertical thruster.

Sonar :
The sonar is used to localize the submarine by trying to detect the borders of the water area. The sonar makes a continuous scan of 360°.

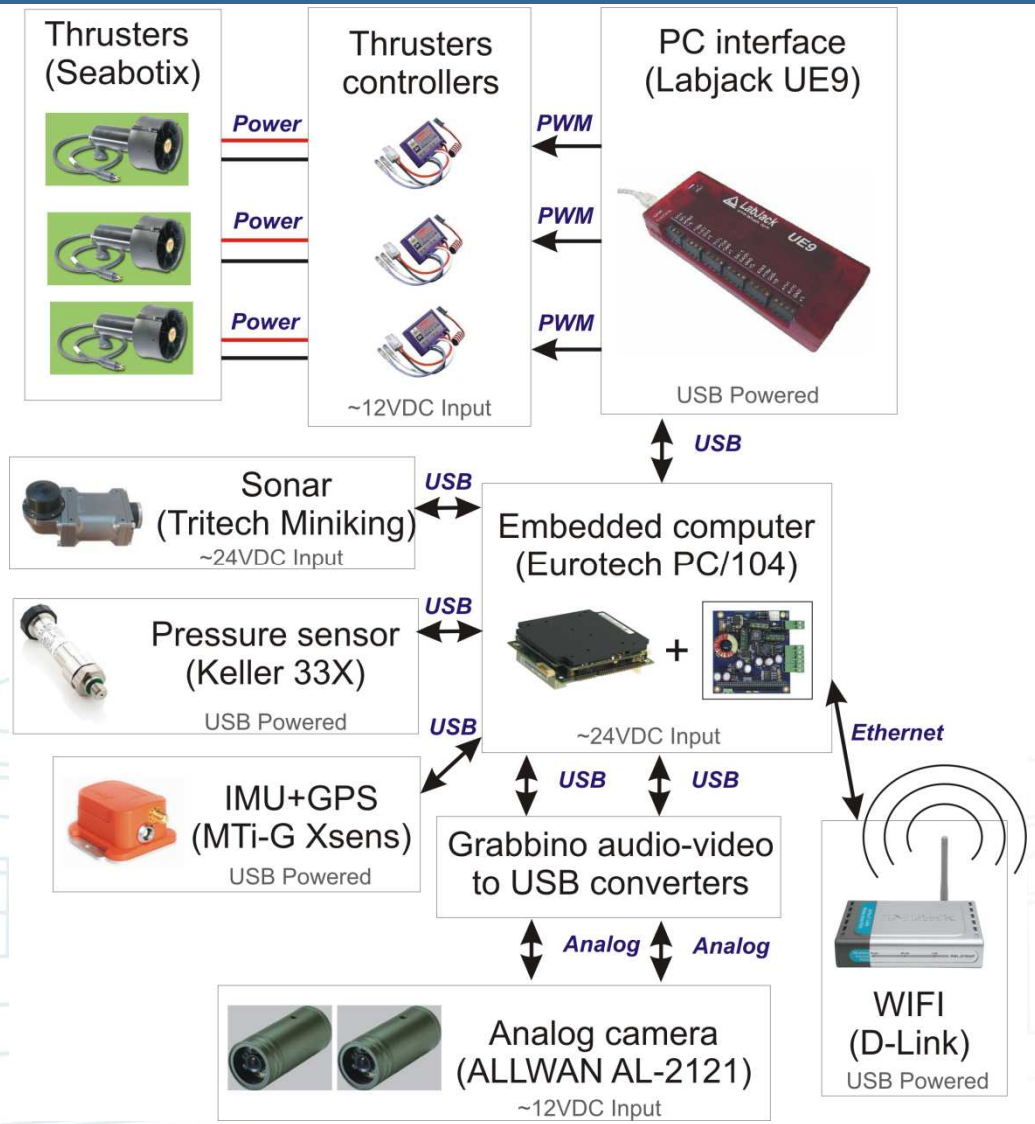
Présentation générale : intérieur



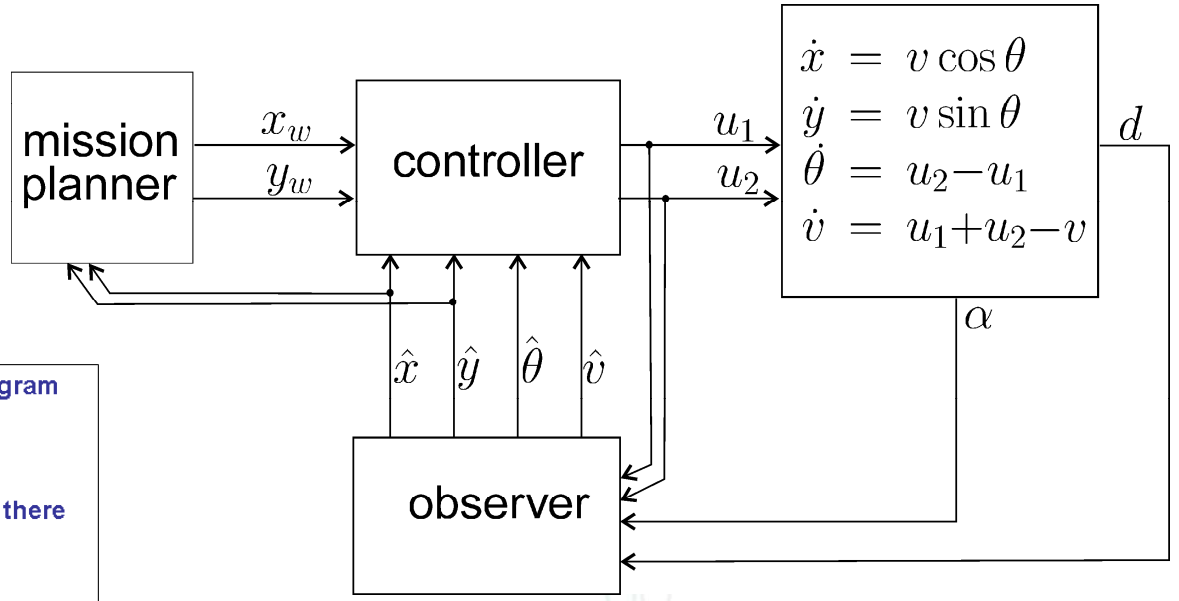




Electronique

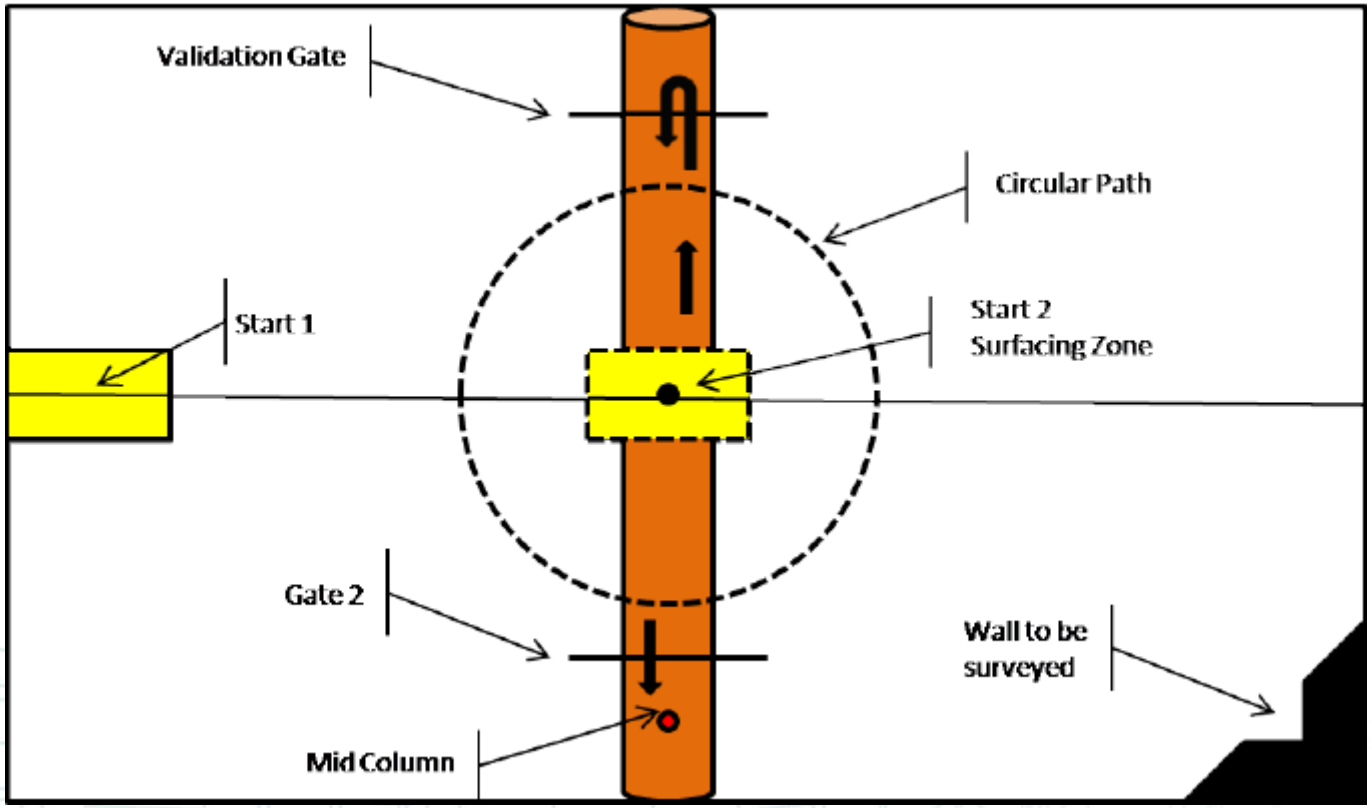
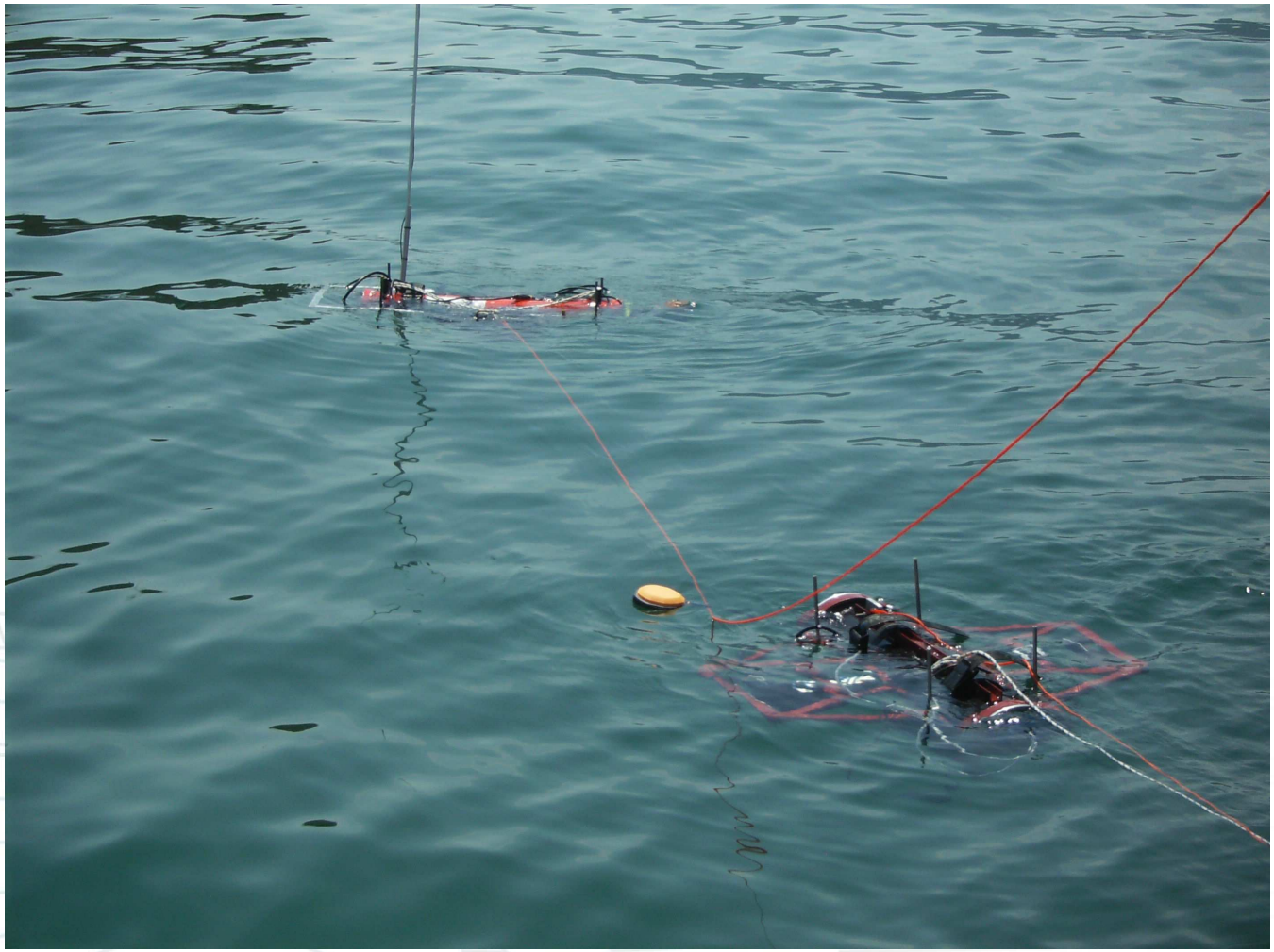


Contrôle et autonomie




```
% this is a commentary. It is ignored by the program
% Example 1: go to depth -3m
%% step1: start depth regulation
depthreg -3
%% step2: wait 15s for the robot to actually get there
wait 15
% Example 2: some random movements at -3m
heading 1
wait 5
thrust 1
wait 10
stop
heading 1.57
wait 10
% Example 3: high level action
configureWallFollowing 12.5 1.2 -1.57 0 0.3 0.2 0.5
startWallFollowing
wait 20
stopWallFollowing
generalstop
depthreg 0
```

Concours SAUC-E



Vers une meute de sous-marins…