Introduction:

When a marine buoy with electronic equipment is deployed it is usually switched off during transport to the deployment location, which can take days to weeks. The system is then switched on just before its final installation. Electronics and batteries are stored in sealed containers that can be difficult to manipulate especially while at sea; it is preferred not to open them unless absolutely necessary. Therefore a rugged switch or connector can be installed on the exterior of the buoy. These external connectors come with extra cost, add another path for water intrusion and might allow accidental manipulation. An alternative solution could be radio linked remote control (RC) that can work transmit through the container wall.

Project Brief:

Some requirements for the RC are:

- Its signal should be encoded to avoid activation by accident or interference.
- The communication should be bidirectional to confirm to the user that the system is working.
- It should support different modes of powering the electronics, e.g. "switch on and off freely", "switch ON only by remote and require manual switch OFF", "switch on and off freely and have a blocking button", "require a code to operate", etc.

During the first weeks of the project the students and the supervisors will think about the modes of operation and decide which of them are needed, useful or nice to be included.

The unit into the buoy can serve as a low level monitor of environmental variables like temperature or water presence and send it to the remote control along with the system status (on or off) each time it is asked by the remote.

The project will involve the selection of components and the construction of the prototype, the microcontroller programs for the internal unit and the remote unit, and the mechanical design of a final industrialized version.

Company

| Name: | Laboratory of Applied Bioacoustics |
| Address: | EPSEVG Campus - UPC |
| Contact person: | Joan Vicent Castell |

Project team:

| Number of students: | Minimum 3, Maximum 5 |
| Students speciality: | |
The ideal team should include at least a mechanical or design engineering student, an electronic or telecommunications engineering student and a computer/programming student.

- Electrical engineering
- Electronics engineering
- Computer engineering.
- Telecommunications engineering.