## Surf board electronic device

Costa, A.; Jordão, M.\*; Machado, H; Miranda, H., Prof. Borges Carvalho, N. Dept. Electron., Telecomun. e Inf., Inst. de Telecomun., Univ. de Aveiro, Aveiro, Portugal

Nowadays, sports are becoming increasingly related technology, in order to improve its performance.

In this work, we developed an electronic device in order to make way tracking held during the practice of surf mode. The objective of this project is to record the relevant data, to lead to the improvement of physical activity, as well as real-time recording of their performance and send this information to ground in order to ensure the best viewing performance.

The electronic device in 5 main functions: i) read the height of the wave is found; ii) get the speed that the wave travels; iii) obtain the position in which the feet are on the board; iv) obtain the distance traveled; v) obtain the GPS coordinates vi) read the temperature value;

To carry out reading of data, the system consists of a set of devices and sensors. Capacitive sensors printed on paper, which are placed on the board which allow to read the position that the feet are placed. It also contains a GPS to give the actual coordinates and traveled route, a accelerometer that give an idea of the maneuvers done by the surfer and a temperature sensor. For transmission of information read the device contains a radio system with a range up to 1 Km. This device is controlled by a atmega chip that manages all sensors and communication.

The system is powered by a Lithium battery in that its duration allows the practice of sports activity for several hours.

It uses a display interface (processing tool), which allows observing the motion of the 3D real-time board.



Figure 1 – Electronic board