

Preventing and minimizing forest fire's impact

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PREVENTING AND MINIMIZING FOREST FIRE'S IMPACT

We conceived a project aimed at preventing forest fires and, in the case of a fire, allowing the collection of vital information directly from the action theatre, thereby, promoting concerted action and greater effectiveness in fighting fires.

Fires are one of the biggest calamities of our country. The area of S. Brás de Alportel is no exception. The fires that occurred in 2004 and 2012 burnt more than 52% of the forest area that represent big losses of farms, cork industry, hunting and environment. Even many residents lost their houses. In consequence of all this, people who live by the mountain range are tormented and fearful mainly in summer time.

Thus, the idea of conceiving a project aiming the prevention of forest fires and, in case of fire, that would allow the collection of vital information directly from the soil, promoting a concerted and more efficient action in the fire fights.

Collecting:

- the air temperature in Celsius (T),
- the value of relative humidity in percentage(U),
- the wind speed in km/h (V)

We calculated the risk index of progression of forest fire (IRPIFLL)

We also collected the concentrations of Carbon dioxide (CO₂), in the air, once some scientific studies indicate that the forest fires, in the world, cause the release of CO₂ in quantities similar to the vehicles that circulate on the Planet.

The achievement of this kind of data is of extreme importance, in the way that we can understand the global warming and climate exchanges registered in the last years.

We also measured the relative humidity, the wind speed and the CO₂ concentration in different altitudes that will allow us to determinate the degree of risk of forest fires. We also proved that, through the wind energy, it is possible to feed some of the components present in our satellite. The collected data will allow us analyse, on one hand, the degree of forest risk concerning the altitude and, on the other hand, the concentration of CO₂ concerning the altitude.

The satellite will also have a “master switch”, blinking LEDS and a whistling buzzer to favour its recovering.

For the production of the project we involved students from 15 to 18 years, and teachers in the areas of Physics, Information Tecnology and English.

Direct contact with “how to make science”, create motivated students and it will promote a good school culture.