**Motivation**

We chose to develop a solution for this challenge since it is a worldwide problem that has taken great attention in recent times.

After informing us about the current situation globally, we were able to rescue some data:

The World Wildlife Fund (WWF) states that, in 2018, just in USA around 9.000.000 acres of land was lost due to fire.

The Instituto Nacional de Pesquisas Espaciais (INPE, or National Institute of Space Research) of Brazil stated that in 2019 alone there have been more than 78.383 reports of forest fires.

A survey carried out by Weather Source with fire Information NASA's resource management (FIRMS) showed that during the month of August 2019, in Angola and the Democratic Republic of the Congo (DRC) had more than 10,000 active fires combined.

According to Bolivia's National Climate Change Program, with the data provided by the MODIS sensor of NASA's TERRA satellite, they proved that the main cause of fires is the burning of grasslands.

According to Greenpeace in 2019, forest fires increased by 80% compared to the previous year. The main causes being global warming and overpopulation.

According to the Food and Agriculture Organization of the United Nations (FAO), burning of biomass is considered to be the factor that contributes most globally to greenhouse gas emissions and tropospheric ozone precursors. In the world, it has been estimated that the burning of biomass gives off about 3,460 Tg C as carbon dioxide.

We live many natural hazards in Cordoba, which is why we felt that we should look for a suitable solution. We decided to work with cientifics under the project of Meteo CAERTE, which has been stimulated by the Comision Nacional de Actividades Especiales (CONAE), who developed the Forest Fire Danger Index (FFDI).

We found it challenging to find a way to involve the community in this area to raise awareness, active participation and mutual help between them and support staff (firefighters, police, medical staff, etc).

**Solution**

Our idea was to develop an cross-platform, open source app which we called FireTeam.

FireTeam is a social network which main functionality is to connect people who find themselves in a calculated radius depending on the danger zone (CrisisZone) during a fire through a common chat.

The FireTeam community has as its objective to help one another through the recommendations provided by our Admins (firefighters, policemen, paramedics, etc.) therefore facilitating direct and real-time communication about the current situation, responding to the main problematic found when trying to update the status of the fire.

In the app you will be able to interact by sharing pictures, videos and audios about the status of the different focuses of the fire. You will also be able to filter your search using hashtags to find appropiate information quicker.

Our app also allows for the user to report a fire in his current location or locating it in the map, where you will be able to share relevant information such as images or videos to perceive the magnitude of the fire. its characteristics, or other details like the place of origin. Our AI will proceed to corroborate the provided information monitoring that sector and searching for hotspots through the VIIRS sensor of satellite Suomi NPP provided by NASA.

Once checked, the fire will be notified to nearest fire station and to the people located within the CrisisZone, optimizing the time and effort of the firefighter teams when protecting the fauna and flora and the lives of the inhabitants.

FireTeam also stores information of other many satellites (SAOCOM, LANDSAT, SENTINEL, AQUA, TERRA, etc.) and of the users’ contributions for its later processing.

With all the stored data a map is made with filters containing both the various focuses of the fire with their respective CrisisZone, the nearest refuges and fire stations through a software which will also create a projection of the upcoming trajectory of the fire with its current conditions, which we called S.A.R.A. (Software Anti-Fire Risk Analysis), which will help visualize the more vulnerable sectors.The users who find themselves in danger will be able to use a panic button which will display their location in the chat, will communicate them with emergency services, and will send an alert to its preseted contacts (CrisisContacts).

With FireTeam people will be able to organize in groups to evacuate in case of such an order being given by an Admin, and will be directed via GPS to a refuge or safe zone, also showing the time left to arrive to the destination.

One the fire is extinguished, the chat will be permanently and its members will be able to access to its statistics, this will count with data about the burnt area and estimating the quantity of flora that would be necessary to reforest the place.

(\*) Users can choose to leave the chat if they wish and re-enter as long as they are inside the CrisisZone.

(\*\*) to prevent off topic posts, moderators will be placed and sanctions could be applied

(\*\*\*) in order to be able to report a fire, users must be verified. This means to provide a verifiable phone number and ID. False reports could incur in legal actions.

(\*\*\*\*) If our AI cannot verify the information for external reasons, we will proceed to inform the nearest headquarters in the same way.

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(\*\*\*\*\*). Once registered, the user is a participant in the award / valuation system, that is to say, for each validated report he will obtain points to scale in the valuation levels.

(\*\*\*\*\*\*) SARA operates by collecting the information provided by the Normalized Difference Vegetation Index (NDVI) provided by the MODER sensor of the TERRA satellite, Water Deficit Satellite Index (TVDI) provided by the MODIS sensor on board the AQUA satellite and the Forest Fire Danger Index (FFDI).

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