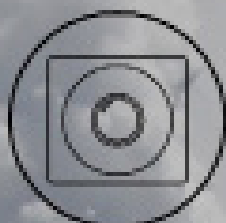




Red Cross Emotional Relief Drone



After a disaster, panic and desperation sets in for victims. However getting information such as "help will arrive by morning" can be emotionally relieving. This drone would be sent in, before it is possible for The Red Cross to reach the victims. The drone has the ability to spread information and a means of communication for victims.



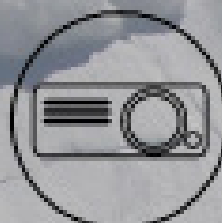
HD LIVE FEED



LEDs



2-WAY COMMUNICATION



PROJECTOR



LONG DISTANCE
REMOTE CONTROL



COMPACT DESIGN

Why

One of the largest problems for The Red Cross is being able to provide emotional support to people who are stranded in difficult to reach situations. This drone is designed to alleviate that. Having the ability to relay messages quickly and effectively helps the victims to deal with their situation, which can lead to supporting and increasing the chances of rescuing them.

The concept of the Red Cross "Emotional relief drone" is to reach victims of natural disasters such as forest fires, floods, earthquakes etc. The drone is sent by the red cross to the victims to spread awareness that people or supplies are coming soon. It is equipped with a camera, microphone and a small projector. The projector can project short simple messages via air particles. On the other hand, the microphone and camera keep the victims in touch with the rescuers.

What makes the drone different is its compact size. Instead of four carrying arms for each electrical motor, the motors of each side are connected with a hollow plastic tube which is attached to a hinge mechanism to the main body. Thanks to this hinge the arms can be bent in a position vertical with the main body. Furthermore, this feature would also help the drone from taking off from a rough terrain and keeping it stable and secure in flight.

What

How

Features

- compact HD camera
- small integrated projector
- foldable arms
- LED lights
- Large Ion Battery
- GPS indicator
- microphone

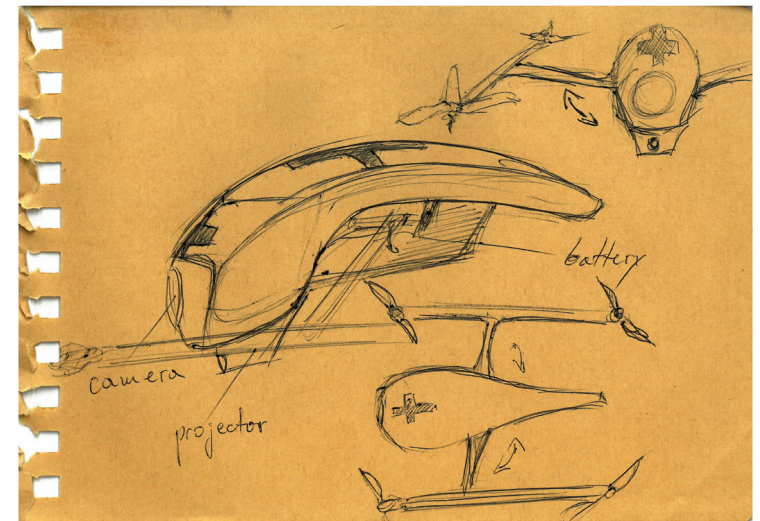
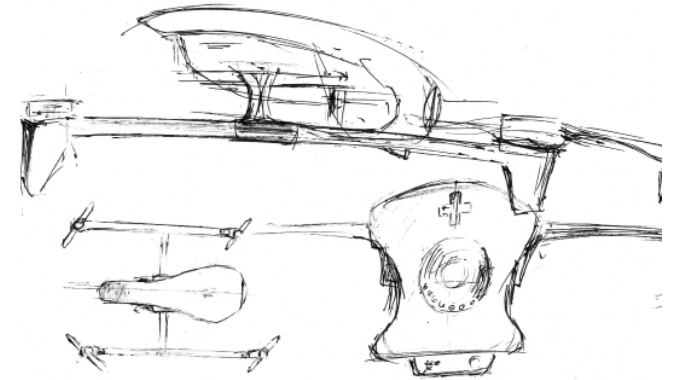
Atvantages

- reducible size
- 4km signal range
- two ways of communication
- message projection abilities

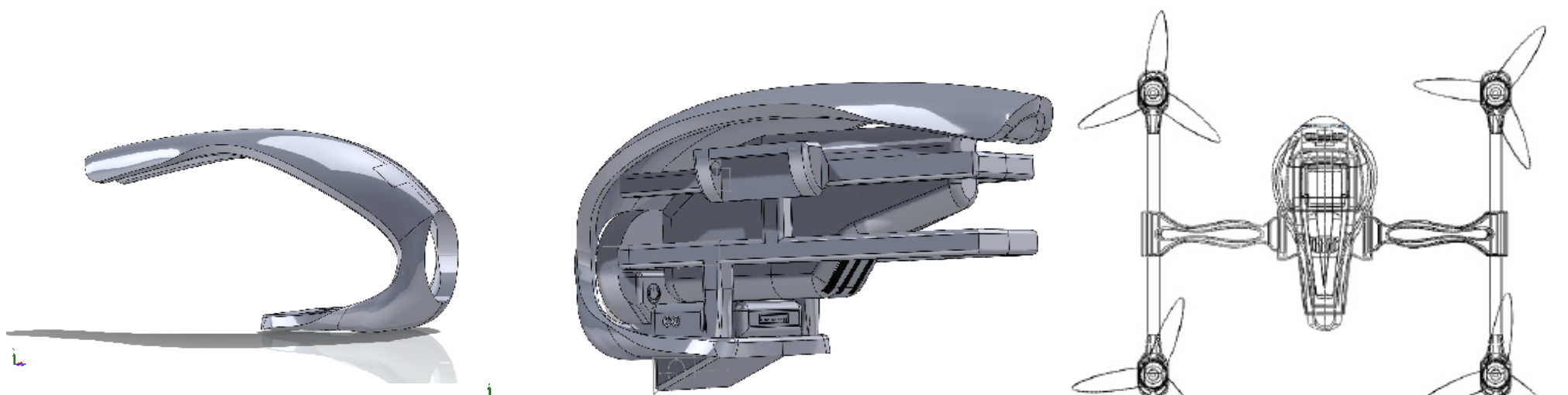
Idea From a Simple Sketch

The first days of the project me and my team spent in researching done trends, features, pricing range, brands etc. We managed to outline some scenarios and to shortlist the possible features our drone must carry with it in order to be "The Red Cross Drone". The sketch concept I proposed (on the right) was the one my team members agreed to further develop.

We got to choose from a small variety of design concepts we developed during the first few days of the project. We all agreed to further develop this particular design proposal due to the well-planned shape of the main body which appealingly accommodates all the components needed. Perhaps, the main reason we choose this design was the folding arm's feature which seemed to fit the initial idea.



Img. 1,2 Concept sketches

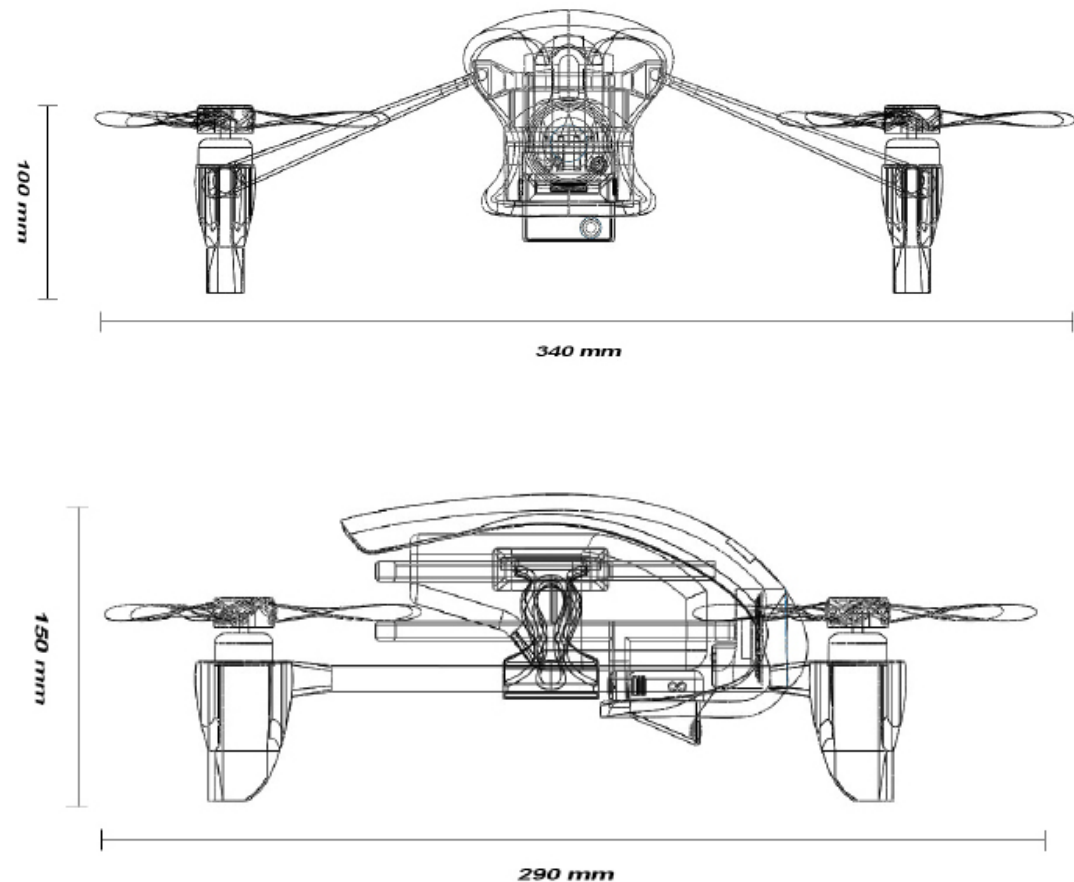


Img. 3-7 CAD development and technical drawings

Once the design concept was considered we set a deadline to complete each component of the final poster seven days before the deadline. In this case, we had seven days of tailoring and refining the poster. Due to that, we spent more time trying to deliver the message the best we could which resulted in the generation of not one but two posters.

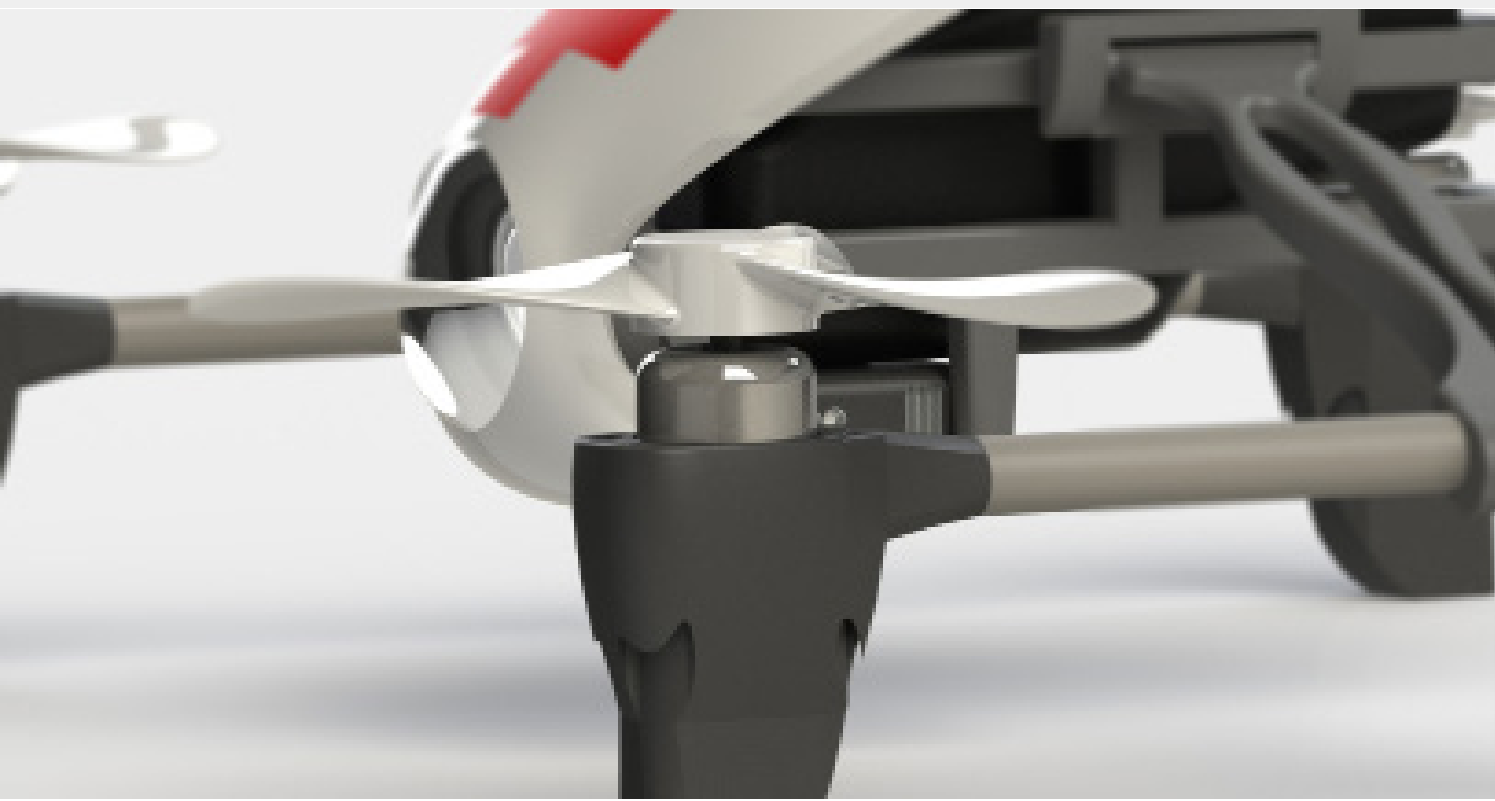
In order to progress on a faster rate than the other groups we split the work into three main roles - 2D and 3D development; communicating scenarios of use; and Visual message delivery.

I picked on the 3D process as I was feeling most confident in that area. I manage to complete the drone within 3 days from scratch, leaving myself some time for adjusting technical issues and overall refinement. The biggest challenge I faced during the modeling phase was the positioning of all the features inside the cage. I had to make sure that the main body can accommodate the actual camera, projector, battery and the microphone.





For all the components integrated into the main body, I created a protective surrounding cage. The cage also serves as an axis point for the folding arms and the hinge.



The main body houses Lithium-Ion battery along with a small camera, microphone, GPS Indicator and a compact projector.

Img. 8,9 Finished product

The drone is able to project messages in the air using the latest projection technology.

It is faster at getting information to victims before help and relief workers arrive.

The front of the drone is fitted with a communication system, especially useful in countries where access to technology and the internet is limited.



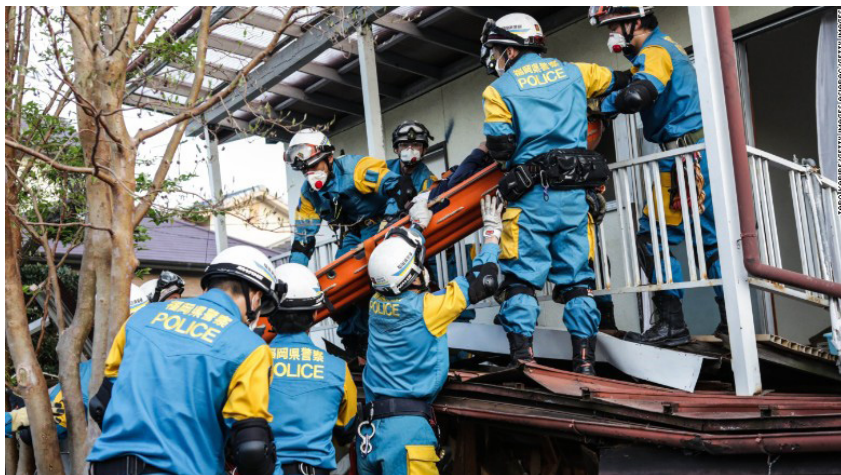
Img. 10-12 Dissaster senarios

Helping people in difficult to reach areas

The done would be extremely useful in areas with limited or no internet connection. Nowadays, reporting an emergency can be as simple as a social media post to #Red Cross and immediate response can be expected in minutes. However, in some area around the globe, a not consistent internet connection can sometimes be the changing factor in an emergency situation where action must be taken as quickly as possible.

This is where the our drone concept would make the difference. In a disaster situation, the first thing that spreads among people is panic and fear, especially when people are isolated from the outside world not knowing what is happening. The ability of the drone to project messages and let the victims know that they are not forgotten or alone is where this compact high tech piece shines.

Img.13 Japan's Kyushu island earthquake



Img.14 Flood victims-India 2014



Red Cross Project HERO

At the beginning of the project, we found about a collaboration between the Austrian Red Cross and Land Rover in this project called "HERO". The drone is controlled using tablet app which allows the people in the car to explore the surrounding area. The drone follows the car as it drives while providing the people inside the car with live 360 views from above. On the top of the vehicle is located the landing dock with innovative side hatches and a pull-out floor. We manage to adopt and improve some of the features and ideas of this project.



Img.15
RD Project
Hero

Project Hero: <https://www.landrover.com/experiences/news/project-hero.html>