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Research and Rescue Drone with Human Detection

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ABSTRACT: In the recent times world is facing many natural calamities as well as some muddled situation which cannot be controlled. This situations has been as eye opener to the world. Being too problematic to control such kind of situations. So here we are with a technology “RESEARCH AND RESCUE DRONE WITH HUMAN DETECTION” is a system that will enhance the security of the one who are in any kind of menace. In this system there is a use of FPV drone which is custom built by our team. For human detection “Open CV” technology had been used. The main motive for developing this system is to understand the chaotic/crowded situation and prevent any sort of grievances or incident from occurring. While developing the project a plan was made carefully taking all the factors into consideration such as if the project is cost effective or no, the easiness of the system. It focuses on the detecting the posture of humans and understanding the body language. It can be used to navigate the victim who are hard to find by human eye. Here we can take an example of ‘The floods of Kedarnath’ that was a pettifogging situation. There were thousands of victim who squandered their lives. This project can be used in such situations.

KEYWORDS: calamities; eye opener; Open Cv; grievances; treacherous;

I. INTRODUCTION

“**Safety is a small investment for a rich future**”. Before beginning the introduction of the system “RESEARCH AND RESCUE DRONE WITH HUMAN DETECTION” it is important to know the idea and the motive for developing this venture. In topical times there have been many natural disaster which were to treacherous and many of the quarry lost their lives. There were even casualties in which many of the victim weren’t found. To overcome this critical situations and to prevent such kind of incidents we’ve come up with the project that will help in giving quick navigation of an individual so that he/she can be given quick medication. The features of the FPV drones are

- Flight Controller
- Electronic Speed Controller
- Brushless Motors
- Carbon Fiber Frame
- FPV Camera
- Video Transmitter
- FPV Goggles
- Uvc receiver
- Led
- Bluetooth Speaker

II. WORKING

The working of the model is been explained below:

The working of the drone can be explained in few simple steps we are going to use a flight controller which is the brain of the drone. Flight controller helps us to connect different parts together and make it fly. We can also call it as the brain of the drone. After that comes the second important part which is brushless motors and electronic speed controller(ESC). They both are co related and cannot work without each other as esc helps motor to understand the signals sent by the flight controller. After this the next part is receiver which will help us control the drone with the help of a transmitter. It converts the signal received from transmitter to the flight controller so that it can understand it and send signal ahead to the electronic speed controller to control the direction and speed of motor. After this the last two components which work together are FPV camera and Video transmitter. They are the components which are the

eyes of the drone which help us to fly the drone in a cockpit view. The reason why we call it as a FPV drone. After the FPV setup is done we use a UVC receiver to watch the live feed coming from the transmitter at a very low latency which will also help us connect it to pc and do the real time human detection using python.

III. RELATED WORK

1. Live Human Detection Robot:

The Live human detection robot helps in those crucial times, it enters to the places which the human or bulk machines cannot enter and identifies whether the person is ex sanguine or alive.

2. Wireless Human Detection Robot:

This makes the robot move automatically without extraneous source controlling it. Human can be detected using a PIR sensor. A PIR sensor is a sensor that produces passive infrared signals, these signals can detect heat. Human being produces heat which is detected using this sensor.

3. Mobile Rescue Robot for Human Body Detection in Rescue Operation of disaster:

When the PIR sensor detects a motion signal in its surrounding, then control program will orders the camera to display the surrounding area. If a human is detected in disaster area covered by mobile robot, then proposed system sends its current location & shows live vision to the rescue team.

IV. PROPOSED METHODOLOGY AND DISCUSSION

Step 1: Research and planning:

The very 1st step was to have a blueprint of the plan for proper execution of the project. The team members in the group started rendering for as much as information, mates were able to collect.

After each and every one of the team had some rough ideas, now was the time to decide the technology on which the project will be developed.

Step2 Technology selection:

There's no doubt that the team had a huge confusion in selecting the technology/ platform on which we were supposed to develop the web application. Yet after many series of discussions we finalized the language like "PYTHON". Due to the less complexity and more easy outcomes we chose this language. This languages provides a huge varieties of options for developing the project.

Step 3 Development phase:

This was the most complex and time consuming phase as there were many ideas brought together. But as there was already a blueprint ready for the project it made our work a bit easy. In this we used the best tools for development. It involves everything from the features like the parts of drones to the OpenCv programming which makes the project a huge accomplishment. The main task was to make the drone much capable to face any natural situation such as heavy rain, heavy wind flow etc. It took hours and hours to make a perfect mechanism for the drone.

Step 4 Testing:

After the development was completed it was time for us to test the project and solve if any problems faced. We presented the project to some experts and took their feedback after testing it. We even made the drone go through some rough situations.

Step 5 Launch:

After completing and doing certain changes in the project which were recommended by the experts we deployed it. We will make sure that our consumers do not face any issues from our end. We have also made sure that the project gives 100% accuracy for the human detection and the working of the components, the drone contains.

The methodology has made a huge contribution in making the web application this successful and lucid. By following all of the above steps we can say that our project is much capable to be one of the frequently used project

V. CONCLUSION

To conclude, this project is of great importance in our day to day life. It not only can be used in the catastrophic environment but also offers to handle the frenzied situations peacefully. There are many advantages of this web application such as it has features like Bluetooth speaker which is used to send the message to the victim in stressful conditions and make them mentally calm. It also has a Led light which makes the vision of the drone much clearer as



well as makes the fatality alert about the incoming help. It is much efficient to be used by the rescue team to make the employee alert about the detection of the victim in the areas where it isn't possible for one to go. For example while in earthquake victim can get under the debris which becomes too difficult to identify by human eye. It gives complete mobility as well a fascinating speed by which one can easily do the needed operation. The target audience of this project are the organizations responsible for the rescue during traumatic conditions as well as the organizations liable for controlling situations like crowding etc.

We look forward to prevent any kind of incidents and if one occurs our system will serve its given task. To conclude we would say that "Safety is gainful. Accident is painful".

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