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AN AUTONOMOUS SOLAR BALLOON PROVIDING ELECTRICITY TO DISASTER ZONES

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Abstract - Earthquakes, tornadoes, fires, and floods; disasters come in a variety of forms. And depending on when and where they occur, the job of relief agencies can be difficult. Aid workers need electricity to help those affected, whether it's used for setting up temporary hospitals and shelters, or for locating survivors in the wreckage. Diesel generators are frequently brought in to do the job, but they require a steady stream of fuel. So, what if there was a way to provide reliable power independent of supply line logistics? That's the idea behind the Photovoltaic Balloon, which uses solar energy to provide electricity in a disaster zone.

Keywords – Disasters, generators, electricity

1. INTRODUCTION

There are some places where natural disasters often occur and there are no steps taken to overcome this problem. When a natural disaster occurs two things matter. The first and foremost thing is the casualties. When a natural disaster occurs there will be a lot of causalities and then the major thing we face is the electricity. After all the commotions and also when the rescue squad arrives there will be a need for electricity. Most medical equipment needs a power supply and to provide that most common way is to use a generator which burns a lot of fuel. The resources that are depleted cannot be refilled. Also, we are running out of resources. To overcome this problem, we propose an idea.

2. IDEATE

When a disaster hits a nation, there will be a huge loss of life. And the mandatory things to survive will be disconnected. Electricity plays a vital role in our day-to-day life and also in crucial moments. Right now, life without electricity is impossible. So, we four planned to make an autonomous solar balloon bringing electricity to the disaster zone.

3. PROTOTYPE

It's essentially a large balloon, capable of capturing solar energy, and a base station housed in a portable crate. The base is comprised of three main sections: an on-board computer, a water compartment, and

a drawer that stores the balloon and its deployment cable. Here's how it works: the case is transported to a disaster zone. You remove the balloon from the drawer and open it up on the ground so it can start collecting solar power immediately. Now add water. Zephyr has an electrolyze on board that uses nine litters of water to produce hydrogen to inflate the balloon, which attaches to the base with the cable

Constructed of a hydrogen plastic sail, it's covered with a thin film made of copper, indium, gallium, and selenide (CIGS) that absorbs solar energy. The balloon can fly as high as 165 feet and has a steering mechanism, which ensures it receives maximum exposure to the sun.

Electricity travels down the cable to the base, where it's stored in nine high-capacity batteries. A transformer standardizes the electricity to specified requirements and distributes the power, enabling the production and consumption of energy to occur at the same location.

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