2018 年臺灣國際科學展覽會
優勝作品專輯

作品編號 **190012**

參展科別 電腦科學與資訊工程

作品名稱 **Developing Swarm Intelligence with Flying Robots for Life Saving**

得獎獎項 四等獎

國　　家 **Hungary**

就讀學校 **Márton Áron Főgimnázium, XI. E, matematika-informatika osztály**

作者姓名 **Tamas Imets**

作者照片

Abstract

Purpose of the research

I had a bicycle accident eight months ago and I suffered an opened humeral fracture. I wasn't able to get up on my feet, I had to suffer on the ground while a couple accidentally walked there, and they called the emergency services, I lost a lot of blood and the doctors had to cut a small piece of muscle out of my biceps. Now this shouldn't have happened if there were a faster method on making first aid. Example an intelligent flying robot could easily handle this situation.

Procedures

There is a hexcopter and a quadcopter. Both of them has cameras with live image transmissions in Full HD and they also have GPS. They are equipped with a lot of sensors (image recognition with Raspberry Pi, 6 axis distance sensors, long range communication modules) and with these they are able to solve problems just a bird or a human does. These drones can communicate up to 1.8 kilometers, they communicate with the main server, they share their knowledge with each other and this way they can learn about the world and about the terrain that surrounds them. In a very basic way they are able to learn… Each time they make their flying techniques smoother and their database is growing.

These drones can cooperate and save lives faster than humans do. They are also able to fly in non-accessible zones by themselves with no human help. For example with their sensors they can fly in and map buildings that are inaccessible for people. They can also do artificial farming with their object recognizing features, like recognizing plants and colors. (Right now they are calibrated to look for survivors alone in the mountains/forests.) They go to a given GPS coordinate then they are flying in a spiral form to find the injured people in less than a half hour. I really hope that one day these flying intelligent machines will save lives!

Note: (I probably can only take one drone with myself to Taiwan, because of the traveling restrictions on planes.)

【評語】190012

Very good practical project.

Need to perform move real-world testings and collect data to improve system performance and to justify readiness for real-world usage.