Alberta grads develop high-flying Wi-Fi hot spot

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In places with little to no cellular service, a portable drone that can connect people to the internet in remote locations could be the difference between life and death.

A group of graduates from Red Deer College has created a prototype for a flying Wi-Fi drone that could provide connectivity for workers in remote areas, or search and rescue teams.

They were recently recognized by the Association of Science and Engineering Technology Professionals of Alberta (ASET) for the Capstone Project of the Year Award, presented to deserving engineering technology students.

While humble, project member Jonathan Wong acknowledged the drone could save lives.

"It's pretty useful for workplaces that are in the wilderness and don't have cell signal," said Wong, listing mining, drilling and exploration companies in addition to search and rescue professionals.

"There are some places you can only access through hiking and can't really drive a vehicle through, so it would be good to have on your back. You can take it anywhere."

Wong said it weighs about two kilograms.

The project team developed the flying Wi-Fi hot spot by equipping a small drone with specialized radio equipment, which enhances cell service reception.

The drone, capable of autonomous flight, can reach an altitude of 200 feet to project a Wi-Fi signal allowing the user to make calls or send texts.

It takes off and lands on its own, where it can then be recharged using the landing pad.

Wong said it's especially useful in the event of an emergency, particularly in places where the terrain is rough or forested.

"Currently, in areas where no cell service is available, industries are limited to only a few solutions, many of which involve big or bulky devices or curtail the number of users. The (drone) was designed to build on the shortcomings of existing telecommunications options," said Wong.

As it stands, current solutions include the construction of additional cell towers in remote locations, using a satellite phone, or driving or hiking to higher elevations in an attempt to connect with a cellular signal. However, Wong said the drone option is more feasible, costing up to 40 per cent less than constructing a portable cell tower. It also takes less time to set up, has no area restrictions and provides more privacy in comparison with a satellite phone.

He said the team has no future plans for the prototype just yet but is interested in building an enclosure for the drone to protect it from the elements. However, he added, they did test the drone in -20 C weather with no issue.

Their project was one of eight nominated for the provincial award, with one winner and seven finalists. Although the drone didn't take first place, ASET CEO Barry Cavanaugh said the creation greatly impressed him.

"What struck me is this kind of intelligence and ingenuity, married with the practical instinct to make something work," he said.

"You can see any number of things in Capstone projects that are similar, I suppose. But sometimes they just stand out because we think, 'how can nobody have done this before?'And this is one of them. What struck me, as well, was that it's done entirely for a public good."

The Capstone Awards were founded in 2017 to showcase projects by soon-to-be graduating students from Red Deer College, Lethbridge College, the Southern Alberta Institute of Technology and the Northern Alberta Institute of Technology.