Canadian girl power tackles COVID-19

by Dennis Furlan

When COVID-19 began spreading globally, many of us wondered what we could do to safeguard ourselves. Perhaps if we had a box to put a bunch of our items in, turn on, and zap, and quickly disinfect everything, we'd feel more protected and less vulnerable to the virus.

While some of us pondered such a thing, a group of teenage girls from North Bay did something about it. They developed the UV Cube: a box the size of a small oven lined with reflective material on the inside, containing a UV-C light bulb that essentially disinfects small items, including personal protective equipment and cell phones, from COVID-19 or other viruses, bacteria and fungi — within 10 minutes.

First Robotics Team 1305 member Tessa Summers with her father Paul Summers, C.Tech. in front of the team's UV Cube sanitizer.

When events and necessity converge

The girls, Ella Kelso, Tessa Summers, Fionna Truong and Emily Yates, are part of a robotics team named FIRST Team 1305, also known as Ice Cubed, which consists of high school students from the North Bay area. Their story of how the UV Cube came about serves as a perfect case study of the engineering process, in which circumstances and necessity converge to provide real-world solutions.

In March, the team was en route to a robotics tournament in Ottawa when told the prime minister's wife, Sophie Gregoire Trudeau, had tested positive for COVID-19. Public events came to a halt, including the robotics tournament and other events. Their bus had to abruptly turn around and revert home, as the initial stages of a wave of lockdowns across Canada took effect.

The team was devastated. The girls couldn't believe a virus could do something like this, and, suddenly, they had more time on their hands. It wasn't long before Fionna's father, Dr. James Truong, an emergency-room physician at North Bay Regional Health Centre, began experiencing the impact of the pandemic. North Bay Regional Health Centre had a shortage of personal protective equipment, including a weeklong mask sterilization process.

"My dad had the original idea for the UV Cube, although using UV light to sterilize things is already proven to work," Fionna explained. "He brought up the idea to some members of our local robotics Team 1305 because our season ended due to COVID-19 and he knew the team was looking for something productive to do."

From conception to implementation

So, the girls got to work. According to Tessa Summers, one of the girls on the team, "First it was just finding the right materials to build the UV Cube, though we hadn't named it yet, then it was all trial and error."

Tessa's father, Paul Summers, C.Tech., who is a lead developer of electric drive systems for Miller Technology in North Bay, and a member of OACETT, guided the girls in assembling the UV Cube sterilizing kit. He said, "The design was kept simple: a base wire rack shelving unit, with a reflective covering secured with zip ties, and a plate to hold the lamp assembly."

The UV Cube ended up being one of the winners of a global challenge set up by Brazilian multinational corporation Vale S.A. to fight the pandemic, which provided members of the team with the funds and support to make 50 units to distribute to hospitals, clinics and other places in need.

It's just the latest example of what happens when circumstances allow the innovators of the world, including a group of Canadian teenage girls — with the help of their parents — to create solutions that benefit humanity.

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