

Women's Robotics Team Embark On Lifesaving Mission

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Young women in Afghanistan embody progress, help their war-stricken country battle COVID-19 by building low-cost ventilators from car parts.

In a report released on April 30, 2020, by SIGAR, John Spoko outlined the scope of threats posed by COVID-19 and the unique vulnerabilities facing Afghanistan. A weak healthcare system, widespread malnutrition, porous border, massive internal displacement, contiguity with Iran, and ongoing conflict make it likely the country will confront a health disaster.

COVID-19 is an upper respiratory virus. Its most severe cases cause damage to the lungs by decreasing the body's oxygen levels, making it difficult to breathe. To help alleviate this, ventilators are sometimes necessary to force increased levels of oxygen into the lungs for survival. Afghanistan faces the global pandemic with access to less than 1,000 ventilators for a population of over 35 million.

Remarkably, Elham Mansori, Florence Poya, Nahida Khajazadeh, and Somaya Farooqi, members of the Afghan Women's Robotics Team, took note of the challenge and refused to sit idly by and watch their country continue to suffer. These self-proclaimed 'Afghan Dreamers' have taken matters into their own hands by creating a mechanized version of the hand-operated ventilator using old Toyota Corolla car parts.

The team was inspired by an open-source design released by the Massachusetts Institute of Technology (MIT) that is specifically low-tech, for easy replication across the world with locally sourced materials. In this case, they were able to utilize windshield wiper motors, a gearbox and motor along with motorbike parts.

Typically, a ventilator costs around \$50,000; however, by comparison, the Afghan Dreamers prototype could theoretically be producing mechanized hand-operated ventilators for around \$500 per unit. It serves as a viable option, and at times the only option, in critical life or death situations. Once completed, the lifesaving model awaits approval by the Afghan Ministry of Health. The young women hope to have the process completed promptly to begin replicating the ventilator in local factories across Afghanistan.

The amazing feats of the Women's Robotics Team were unimaginable just twenty years ago when the women and girls of Afghanistan were stripped of their basic human rights and prevented from working or getting an education by the Taliban dictatorship. In less than a generation freedom has spread throughout the country and created opportunities for all Afghans to pursue a better life for themselves and their people. The Women's Robotics

Team pursuit of a cost-efficient medical device is extraordinary and should be celebrated. Undoubtedly, the 'Afghan Dreamers' are on the brink of revolutionizing the way Afghanistan's Public Health Officials try to tackle huge challenges with limited budgets by leveraging the resourcefulness and enterprising spirit of the Afghan people.

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