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WEBBER ACADEMY SCIENCE STUDENT WINS PRESTIGIOUS NATIONAL INNOVATION AWARD

MONTREAL QC (May 19, 2016) **Ahmed Lone**, a Grade 11 student at Calgary's Webber Academy today captured a Silver Medal and one of the eight prestigious Ernest C. Manning Innovation Achievement Awards at the 55th Canada Wide Science Festival this week at McGill University campus. Over 480 finalists competed with 420 projects for more than \$1 million in prizes.

Lone received a Silver Medal and also a \$500 Manning Innovation Achievement Award, for his work creating the novel method for fire detection, utilizing a camera-based Wireless Sensor Network in order to create a system capable of instantaneously distinguishing fire over vast areas. The image processing algorithms featured color, motion, and flickering recognition and were able to detect 100% of all fires presented.

"Systems that can detect fires instantly are nonexistent making it generally difficult to focus on the eradication of small fires, despite the fact that small fires are much simpler to deal with" explained Lone. Currently, there are four available fire detection technologies: infrared, ultraviolet, photoelectric, and ionization. The latter two are smoke detectors which are slow in their detection and limited to their use in tight indoor settings. The first two are much more precise yet are expensive and prone to false alarms.

Instead, Lone realized the potential of cameras to process images in order to detect a variety of visual phenomenon. Lone's system utilizes algorithms he built to accurately detect a fire within seconds even if there is an obstruction. This allows for the user to respond quickly to the fire and to even prevent it from spreading as it is detected when it is still a small fire. Lone's system could save millions for households and properties which rely on conventional smoke detectors that detect a fire only after it has grown to a detectable, yet uncontrollable size. Lone's technology utilizes a "wireless sensor network", i.e. a network of wirelessly connected sensors to detect a fire over a large area such as a forest. The system's robust and scalable design means that it can be used in both indoor and outdoor settings, and can even be programmed onto existing surveillance cameras.

"The calibre and ingenuity of Ahmed's project proves age is no barrier to innovation," said Jennifer Diakiw, President of the Ernest C. Manning Awards Foundation. "For the

past 24 years, the Foundation has encouraged and celebrated outstanding young Canadians competing at the Canada Wide Science Festival. The 2016 winners are passionate and creative visionaries and we and our sponsors believe supporting them is a privilege, as they are important contributors to Canada's reputation as an innovation nation."

While the field of robotics has continuously procured innovations to help combat industrial, domestic and forest fires, Lone contends there are still issues such as the need for more reliable and robust sensors --- systems that can detect fires instantly and provide that fire presence to an external device. His innovative project was able to identify system strengths, such as reliability and cost efficiency, as well as areas that will require further refinement

The Ernest C. Manning Awards Foundation is committed to advancing students' success as innovators. The Foundation introduced its Young Canadian Program in 1992 to recognize outstanding high-school students at CWSF. Each year, the CWSF and Manning judging teams select eight winning projects, to receive a \$500 Manning Innovation Achievement Award. From the eight, four are honoured with the Manning Young Canadian Innovation Award, which includes a further \$7,000 prize. More information about the Manning Awards is available at www.manningawards.ca, Twitter @ManningAwardsCA Facebook/ManningAwards.

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