

SPELLMAN HIGH VOLTAGE ELECTRONICS CLEAN TECH COMPETITION | 2019

Executive Summary

Introduction

The emphasis on STEM education focuses on helping young people see the relevancy



of STEM in their world. The Clean Tech Competition was developed as a way to excite students by engaging them in STEM innovation. The competition began in 2012, and at that time was only for students from Singapore and California. From there it has grown immensely, with the 2018 competition seeing over 550 teams from 39 countries compete against each other. Themes have touched on a wide range of environmental impact issues, including “Clean Water for All” in 2013, “Feed the World” in 2015, and “Solving Climate Change” in 2018. For 2019, that theme is “Toward A Greener Tomorrow” and under that umbrella, for the first time in the competitions history, there will be two categories: *Mitigating the Effects of Climate Change* and *Resource Preservation*.

The Competition and Project Based Learning

It is critical that students understand how to develop solutions collaboratively. Termed “project based learning,” (PBL) educators are now learning how to implement ways to present STEM (Science, Technology, Engineering and Math) in a way that more closely mirrors what they will find in the workplace: collaborative thinking and project implementation. The SHVE CTC serves as an avenue to help students and their teachers experience PBL first hand through real world applications, seeing and understanding how their innovations can help others.

The SHVE CTC is a worldwide competition to challenge international High School students to come up with a clean technology solution to the challenges put forth by the Competition committee. Students are encouraged to work in groups to come up with low impact solutions to solve the yearly challenge. These solutions are prototyped and brought to market to be put into practice in real-world settings, and student finalists are mentored by professionals. The Final event has brought together the 10 top teams in the past, but will host 20 total in 2019. In 2018, Finalists came from Peru, the United States, Ireland, Singapore and Australia, with over 1300 total students partaking in the first two rounds. In total, 39 countries participated and over 550 papers were submitted for judging. Teams also had the opportunity to work with mentors and a patent attorney to help turn their ideas into reality.

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How it Works

The SHVE CTC begins with the creation of a theme, which is then announced by email to over 25,000 teachers and educators around the globe. Teams register in sizes of 1-3 on the website, and submit a paper for the first round that is judged a minimum of three times by a panel of volunteers from various STEM fields. From this list, the top 30 teams in each category are selected as semi-finalists, and the top 10 teams in each category are invited to compete at the Finals event. These 10 teams are each awarded a \$200 stipend to create a prototype of their invention, which they will present alongside their paper to a panel of judges at the Finals. Each team in the finals wins a monetary prize, and the top team of each category is paired with a Mentor that will continue to help guide them as they modify and improve their invention towards the goal of acquiring a patent.

Engaging the Community

The competition is hosted in a different location almost every year. This helps to spread the awareness of the issues the competition aims to rectify by putting the competition squarely in the cross hairs of local communities. Teachers, students and the general community are encouraged to attend. While all are invited to observe the ingenuity on display, some may be asked to serve as a judge or speaker at the event. The competitions goal is to improve the environmental future we have in store for everyone, making community inclusion and involvement an additional objective of the Clean Tech Competition.

Opportunities for Employees

We look to get as many people involved as possible, and employees are always a great resource to tap into. They can be utilized for a multitude of tasks to help the competition succeed. Some may look to engage the community through their children's school. Others may host STEM workshops to educate the public. A few are usually invited to serve as judges or mentors for the competition as well! Widespread involvement at all levels of the organizations involved is important to the competition, and helps it become a cohesive organism that has help from top to bottom.