Rahma Elsayed Fetouh

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➔ Education

Kafr Elsheikh STEM High School (2019-2022)

Kafr El-sheikh, Egypt GPA: Unweighted: 3.7

Relevant Coursework: STEM fields, Speech, Advanced Lab, and Language.

➔ Projects related to Egypt Grand Challenges

Bladless wind turbines system :

As a group of three students, we could investigate the Bladeless technology. It consists of a cylinder fixed vertically with an elastic rod installed on a base made from a rigid material such as steel. The cylinder, or mast, oscillates on a wind range that differs in height and shape, generating electricity through an alternator system. It mocks wind energy based on a resonance phenomenon produced by an aerodynamic effect called vortex shedding. This project is discussed to be applied in Europe but converting the system to Egypt, with its high wind speed, could increase wind production by 30%. The project, with its simple structure, would save the budget by 15% according to the cost of manufacturing and electricity generated. The project got a distinction from the Cairo innovation week conference with a plan to apply it throughout the east of Egypt: Hurghada Governorate.

Electric circuit treating system

: Electronics industry process for water reuse. The usage of 1000 liters/day plays a big portion in Egypt's water consumption, according to the Ministry of Water Resources and Irrigation. Removing the contamination of copper, lead, and cyanide from the circuit by water is environmentally vital. Treating the water after the washing step of the circuit with the potassium permanganate. This wastewater is unacceptable to use again or to throw into the industrial drainage as it is much more polluted. Throughout the project, there were multiple steps for water disinfection to get it deionized again, so it could be used again and save water by 83% throughout the month. The simple steps include reacting that water with specific chemicals, passing it with lime water, then deionizing them with metal plates and electricity. The project got an A grade through evaluation.

Straw Power in treating agriculture water for drinking :

Today, according to the high population growth, the food intake rate has increased, leading to a high rate of hunger. At the same time, high rice planting at the same time as harvesting allows a high volume of straw to be burnt, creating an increase in greenhouse gases (global warming) because the high rate of rice planting causes a high water demand. At the same time, water quantity is limited. So the project work on both sides. Water filtration goes through several steps with the help of a straw. At first, it moves water into moringa, gravel, sand, and zeolite. After this, it will pass through the straw after burning as (activated carbon), and the products will be (CO and CH4) and be transformed into eco-friendly materials by sparolina phantasies. Ash of straw will act as bozolnic material. That is good for concrete, and this is how we conserve water and do no harm to the environment. The project got first place in Egypt INTEL Competition and an A grade in the Capstone project.

✓ Skills

Computer Microsoft Office Suite, Adobe Illustrator, Google Apps for work

Programming JavaScript, HTML, CSS, and python

Writing Music composition, narrative nonfiction-writing

➔ Extra-curricular activities

North Korea delegate in Palestine Israel conflict, STEM MUN (+36 HOURS)

Participated in seven debating workshops
trained +50 rising juniors on how to present opinions in a convincing way.

Project Adviser for school sophomores, Kafr El-sheikh STEM High School (+16 HOURS)

Advised and revised the work of one of my school's capstone groups after being the school's capstone leader chose 8 distinguished juniors from my class.

CEO of FCSS Team (+112 HOURS) 05/2020-09/2021

Lead a boot-camp for 45+ Egyptian students with no access to education of US admission.
Made 2 great summits with speakers from different universities for free adising .

Ambassador in IAAC (International Astronomy and Astrophysics Competition) (+16 HOURS) 04/2020:present

Promotes for the competition through the instgram page
Allowing +250 high school students to know more and join the competition

Founder and lead mentor, Kafr El-sheikh STEM Astronomy Club (+120 hours) 05.01.20-present

Lead about 200 student in the club with different committees, and made about thirty workshops in different topics in the field with practical observation.
Studied advanced college level astronomy (Basics of Astronomy, Orbital Mechanics, Stellar Evolution, Advanced Cosmology, and Basic Quantum Mechanics) with their applications.

Junior Academy, the New York Academy of Science (+36 Hours)

Participated in two global junior challenges over the year, spent 30+ hours working on projects and generating solutions.

Happiness Ambassador, MARAYA initiative

Distributed more than 60 kilos of meat during Eid al-Adha for poor Muslims.

➔ Honors

- ➔ Received the USAID scholarship to join STEM school, ranked in the top 5% of all test takers a pool of nearly 18000 students.
- ➔ Received the second place award for Blade-less turbines system project in IEEE Helwan Hackathon'22 among +80 participated teams .
- ➔ CNSS Certified Network Security Specialist supported by the International Cyber Security Institute (ICSI)
- ➔ Nominated by Kafr Elsheikh STEM School to participate in CONNECT program supported by the US Embassy
- ➔ Ranked the third from a pool of 40 others to reach the national round of the Arab Mathematics Olympiad among other 1700 participant .