

Smart STEM Challenge

Robotic Farm

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Category: Technology & Robotics

Age Group: Senior (Grade 10-12)

ABSTRACT:

This project created to focus and solve the agriculture problem with modern technology. Nowadays, the world population is increasing very fast that in the future, we might be facing with the food problem. Any kind of old traditional farm could not provide enough food for a large number of people in the world. The place for making farm need to move to somewhere that far away from the city center because human will be needing more space to live, this is the cause of nutrient losing problem with food that travel for a long time from the farms to the costumers. It's mean that people could not get what they should from the foods they eat. By combined a lot of farming techniques, we could be solving these and other problems very easily. Some of the techniques are already done in other countries, but it's will be more efficient, better, and cheaper than others with this project. The plants inside the farm don't even need to have pesticides or any bad nutrients that affect the world's environments and human health.

90% of the farm will be automatically controlled by robots powered by Artificial Intelligence or AI. From the start to the end of the planting process will be done by the robots. AI has the job, for example, recognizing which seeds are good, putting them down, take care of them while they are growing, and even gathering the product at the end. This technique could reduce the number of workers from 10 peoples to only 2 peoples, and make the plant healthier. A lot of things about environments around the plants are controllable with computers and humans. We could be able to control the temperature, nutrient, air-flow, water, and light. Because the climate inside the farm is under control, we can plant almost every kind of fruit and vegetable. We can also boost the plant to grow faster and even change their taste as we want. We will be using a technique called vertical farm which left much more space for us. After a few weeks of engineering on this farming technique, we could be able to bring the farm to the city without taking so much area, but it will produce more product than a traditional farm and decrease around 80% of the water that use to grow the plants, it's less than a farm in the past.



A 3d model of the farm.

This project does not create for taking the human job, but it will be created to solve human problems. Sometimes robots can do something better than humans. The quality of food in the future will be far better than now. This project planned to develop and turn everything to 100% automatically control by AI which we can stop thinking about food and start doing something else. We are not yet, talking about colonization missions on other's planets, but if this kind of farm may be brought to the surface of other's planet before humans get there.

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