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VORTEX360

AUTODESK

HEALTHCARE

Let's improve the healthcare systems by making it more healthy, caring and systematic. Design medical gadgets and instruments to improve certain procedures and diagnostic tests.

1) Design an exoskeleton system for disabled people. The product should include all the components required and it should be feasible to be applied in the medical industry.

2) Design a smart wheelchair for people with disabilities that does not require any mechanical work from the person itself or any external help. It should be economical and applicable in the real world. It should help the person to get in and out of the wheelchair themself and in other daily activities.

3) Design a prosthetic limb (arm or leg) which can be used by an amputee which is light weight, cost effective and easy to use i.e. The procedure to perform the required movements should be easy to learn.

4) In the current virus epidemic social distancing has become a necessity. Design a cost effective robot which can be used in hospital to provide the patient with medicines and food and can be used to oversee the patients' conditions and inform the doctor when required.

5) Using the current mechanical Ventilators, there is a chance of having barotrauma to the patients while he/she is using the mechanical ventilators. Make a proper system to overcome this situation.

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AGRICULTURE

Agriculture is the science of sustenance, there also goes a lot of engineering and ideation into making it more efficient. Under this topic, participants are expected to come up with new and innovative ideas to aid the industry in making the process of production as well as transport more efficient.

1) After the harvesting season the leftover crop stubbles are a big problem and burning them also causes a lot of pollution. Design a machine that can uproot these stubbles without damaging the field and can use them to make biofuel.

2) Design a robot that can plant tree saplings automatically at an optimal distance from each other for their growth and also at a perfect depth underground so that it can access nutrients easily.

3) Design a solar powered robot that can be used to spray water into the fields, spray insecticides wherever required and keep birds and animals away from crops.

4) Design an automatic harvesting and collecting Machine that is cost effective and can be programmed for harvesting a given field.

5) Design a robot that can help in cultivating tea leaves. It should be able to pluck the useful leaves only.

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SPACE

Ever had your own ideas for creating elements and mechanisms to help improve deep space exploration on seeing a sci-fi. Here's your chance to materialize your ideas and take them beyond fiction.

1) Design a space saving furniture model that can be applied to space stations and rockets to save space, cost and weight of the same.

2) There is a lot of debris of rockets and asteroids accumulated in lower earth orbit. Design a machine that can be deployed in the LEO to clear the existing debris.

3) Due to the long distances between planets it is difficult to leave astronauts there for research. Design a self-sufficient housing that can be used to colonize planets or moons like mars in extreme conditions so that astronauts can reside in them for a long time without supplies and continue their research.

4) Design a rover that can walk on any terrain and extract resources from them for research purposes. It should be able to gather small samples from different locations and store them in different compartments.

5) Design a satellite docking station that can be used to modify and replace damaged parts of satellites.

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DEFENCE

Defence not only includes complex electromechanical systems required for safeguarding territories, but also the production of disaster mitigation and management machines. Participants must come up with feasible as well as flawless ideas for this budding industry.

1) Design a mobile robot that can be employed to extinguish fires. The robot should be able to withstand the surrounding conditions and be able to extinguish fires as well. The robot would be sent into buildings on fire to rescue the trapped people inside. The robot must be able to detect and carry wounded passengers away from safety. It should be able to clear its path

2) Design an autonomous machine that can be deployed during a bridge collapse. The machine should be able to reach difficult places and clear the path for rescue missions to save the trapped people.

3) Design a remote control surveillance robot that is able to climb walls and move on rough terrain with camouflage abilities to prevent being detected visually.

4) Design a robot that can be used to detect and diffuse mines. It could be automated or manually controlled and difficult to detect.

5) Design a robot that can be used for border surveillance. It should be able to identify enemy and underground tunnels and should be in direct communication with soldiers. It should alert them of its movements and equipped with a distress signal if destroyed.

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COMMUNITY HELP

There are no limits to make one's life easier. How about doing this for your community? Come up with an innovation to make this community better and efficient.

1) Design a multipurpose bot that can be used as an assistant to old people. It should be able to do various tasks like cleaning etc. And help them in their daily activities.

2) Design a remote controlled robot that can assist in gardening. It should be able to atleast plant pots, pick up dry leaves and water the grass.

3) The number of accidents involving 2 wheelers is at a constant rise and it is very unsafe compared to a 4 wheeler. Design equipment or safety systems that can be added to the 2 wheelers to protect the passenger in such an accident.

4) Design something that can help a disabled person in their day to day activities. (You need to choose a disability and come with something that can help those people in their problems.)

5) Design a personal autonomous robot delivery system that can be sent to shops to order and collect necessities during the current pandemic. It should be able to transport the money and commodities securely.

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OPEN INNOVATION

Participants are welcome to come up with new and practical ideas for any real-world problem of their choosing.

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