In Association with

OSS
Open Student Society

Indian Institute of Technology Dharwad
भारतीय प्रौद्योगिकी संस्थान धारवाड
॥ सा विद्या या विमुक्तये ॥

PARSEC
A Paradigm Shift
14th - 16th Feb, 2020

Problem Statements

Women Safety Device

Women's safety is still a big concern in India. In spite of having a large variety of laws, crimes are still increasing. Is the solution to make them stay at home or do you have a more reliable solution for this? If yes then believe me there is no other gift better than this to a girl or a woman this valentine.

A real-time Crop Monitoring system

Monitoring Crops manually seriously takes much effort. Various apps are out there but still lack in real-time monitoring. Can you come up with an idea to detect the crop status and message the operator time-to-time, so that he can be aware of, which part of the field, lacks water or pesticide?

A Helping Hand

A robotic arm for those who have none is boon to them. Use your hands to give them one :)

Smart Dustbin 2.0

Have you ever been careless while choosing the appropriate bin(green or blue) for waste disposal? Wouldn't it be better if there is a single dustbin that can decide what is bio-degradable and what is not on its own, and segregate them into two within itself?

Education to Everyone

Education to blind is still a challenge for us, They equally possess the right to study so there is a need for an advanced moderator. Can you create a device or an interface that's easier to use and much more reliable for communication from **both sides**

Smart Jacket

Winters are great until and unless we get to a phase when we have to wear as many as 5 to 6 clothes a whole day.
I guess it would be better if Batman can give his "Arkham Origin- Cold Cold Heart" suit to you.

Monitoring vegetation near power transmission lines
There should be a minimum distance between power lines and any other earthed object. Generally, trees near power lines are cut periodically. Still, trees sometimes come in contact with power transmission lines and create short circuit faults. A robot can carry a camera and crawl over the transmission lines. Can you develop some algorithm that can calculate the distance with any nearby earthed object and then send the image, location, height of the object, minimum distance from the object to a remote PC if the distance is less than some threshold?

Walker Mechanism 2.0
Paraplegia is a condition of paralysis of the legs and lower part of the body.
Can you design a Walker Mechanism for the people suffering from Paraplegia that can convert their manual handwork to a walking motion?
It will be better if you use mechanical links and joints more rather than actuators as they need power, which is not available and feasible every time.
Note: It's not practically possible to go everywhere with a wheelchair, especially staircases. And they are costlier too if you go for a battery-operated wheelchairs

IoT Traffic System
One day you got up and found that every vehicle on the road has been advanced up. Each of them is able to parse data like position and velocity over the internet.
Now you are given the responsibility to create a network of encrypted conversations between the vehicle and traffic lights to avoid accidents by warning the driver and form a Traffic Management System to reduce the work of traffic police at circles.

Lie Detector
Are we born liars?
An Average person lies 10 to 200 times a day. These lies correspond to a certain stimuli in our body like: some specific muscle in our face contracts and expands when we lie, or pupils dilate, or similarly any other bodily parameter that changes when we lie. Can you come up with a contraption and implement machine learning techniques to spot the liar next time?
If yes then maybe next time your girlfriend or boyfriend will not fake about their relationship.

Apartments are not that good
People living in flat don't have the luxury to dry their clothes in the sunlight. It causes bacterial growths on clothes and thus leading to skin infections and various skin related problems.
Not only apartments, but hostels are also facing the same issues. Here is your chance to make your hostel at least free from this.

Self-sustainable Ship
Humans created Cars, Bikes and many other vehicles running on Renewable energy but when it comes to wave and tidal energy, harnessing them is not an easy job.
This Parsec, can you help Baby Yoda tap into this "Ocean of wave energy" and help him reach home.

Plastic Plastic Everywhere
Most rigid plastic products can only be recycled a few times before they lose their original properties and become non-recyclable. Shall we keep throwing and piling them up or you have a better option to reuse it?
If yes then keep few points in mind:
1. It should be a permanent solution,
2. No other non-biodegradable waste should be a bi-product.

Local Positioning System
You are in an open field and you want to establish a positioning system with an accuracy of 10cm. You can use whatever you want in the field of 100mx100m. Your aim is to locate the position of a particular object in 3D space using your network or algorithm.
You are allowed to use any sensor 'on the object to be detected' and 'on the field'.
Note:
1. Gps have an accuracy up to 3 meters only
2. The present technique (Collaborative autonomous system) is very costly, so the challenge is for doing the same with normal cameras or some cheaper sensors.

Dusty Dharwad
Hubli - Dharwad region including roads and the public area has too much dust in the air. Can you come up with some devices that be installed on the roadsides and public areas for cleaning it?
Remember: The already existing solution nearly cost up to 20000 rupees per device.

Veronica, Give me a hand
Have you ever seen your grandpa asking for your help for standing and support while walking? These problems are common at this age, especially in the case of arthritis. What if you can design something such that your grandpa doesn't have to ask for your help next time.

P.S. You aren't a true Avengers Fan if you don't understand the title.

You are free to choose your own problem statements also