

**IFET COLLEGE OF ENGINEERING**  
**Department of Mechanical Engineering**  
**IFET MINDSPARKHATHON 19**  
**MYIDEA'19 INNOVATION CONTEST**

**IDEA –DEVISE –DESIGN**

- **Technological solution to control the pollution to enable the citizen living in clean atmosphere**

The air and water of urban area has been polluted and it is increasing every day. The presence of PM 2.5 in air is much beyond the acceptable norms in many of the cities causing respiration disease. A technological solution is needed to curb the pollution to enable the citizen living in clean atmosphere.

- **Next generation energy storage systems and conversion**

Renewable energy requires energy storage devices to supply round the clock power. Current solutions use rare materials such as Lithium which are not readily available. Storage Solutions using earth abundant materials are the need of the hour.

- **Designing organic waste energy plants**

Organic waste travels over 300 million miles every day, with municipal waste collection creating a massive carbon footprint and leaving a gaping missed opportunity for energy renewal in its wake. There exists a vast amount of potential in this renewal source of energy where bacteria can be used to anaerobically digest organic waste created at that location and produce usable fertilizer, electricity, and water as a result. Digestion systems can be created, which are compact, easy to install, and turnkey appliances.

- **Smart eco-friendly solutions for garbage management**

Garbage management is a one of the hard problems. The existing model is very ineffective due to its poor placement, collection scheduling, dump yard allocation and management, ever increasing transport cost and resulting health issues. The solution shall present a solar powered smart garbage bin which houses necessary biotech based mini/macro waste decomposer and necessary mechanical and electronics to manage, monitor and secure the Smart bins & detect usage violation etc.

- **Ocean cleaning technologies to tackle world plastic pollution problems**

Plastic accumulating in our oceans and on our beaches has become a global crisis. Billions of pounds of plastic can be found in swirling convergences that make up about 40 percent of the world's ocean surfaces. At current rates plastic is expected to outweigh all the fish in the sea by 2050. It's time to get at the root of this ocean crisis. Develop a process or method or machine should be equipped with reflector to make them show up on radar, thus mitigate the possibility of collision.

- **Develop a protection mechanism to ensure zero failure in cables of steel cars**

Due to hot rolling, residual stresses are present in steel coils. These stresses are released when strip is cut into small pieces causing strip to twist or bend after cutting. Defects like coil set, camber, edge wave, twist or buckle is also not acceptable. Correct knowledge and mapping of residual stress across the cables and width of the strip is required. Develop a method or design to ensure zero failure in cables of steel cars

- **Design new Remotely Piloted Vehicles (RPVs) for Defence applications**

Unmanned drones Robotics and automation Design and development of Remotely Piloted Vehicles (RPVs) with secure and encrypted control systems. Design airborne vehicles which are controlled remotely through secure and encrypted control systems.

- **Smart farming technology :virtual crop growth method**

Virtual Crop VR will help farmers visualize future crop patterns by showing virtual crop growth based on weather patterns, practices etc. The problem still exists as most of the farmers are uneducated and have a rigid mindset when it comes to adapting with modern technology. But through the use of VR/AR , we can provide the farmers with a platform to experience real time visuals and tours of the existing farms which adopt these methods and provide analytical knowledge on those methods/equipment.

- **Drone solutions for farmers problems**

Mistakes made on analysing the structure of the whole field ends up in a lot of crops getting spoilt and cause a lot of harm to the farmers. A solution through drones already exists in the market as of now but in India, since such equipment isn't always an option due to many reasons such as expensive material, rain, winds etc. Therefore through proper placements of sensors and imageprocessingdevice a way to smartly analyse the whole layout of the farmers.

- **Assisted driving solutions for automobiles safety**

Pedestrian death rates are amongst the highest in India as Jaywalking is very common. There is no system integrated with vehicles to detect and prevent this. Availability of such a driver assistance system would significantly take down instances of fatal accidents involving pedestrians. It would identify when a jaywalker/bystander moves in the path of the vehicle and instantly deploy measures to evade or brake.