Mech FEST

India's biggest series on Automobile Technology

in association with

Pravega

The Science, Tech, and Cultural Fest
of
Indian Institute of Science, Bangalore

Understanding Topics

&

How to start with a presentation?

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Smart Automotives

Understanding Topic

Do you really think that automotives is all about Mechanical engineering only? Do you really think its all about basics of mechanics and engines? If yes, then probably its a misconception as in current scenario things are going tech savvy and infact even a drop of fuel is calibrated using electronic means, so for the participants who will be choosing this topic for presentation, will be required to make a presentation, where they will be displaying an idea introducing their creativity to design an automobile which works on electronics systems and sensors.

Starting with presentation

You will be required to bring forth some existing problems and then to give your solution in the form of presentation, an easy example for this will be like Engine Controller Unit where we had introduced multiple type of sensors along with microcontrollers to control the air-fuel mixture entering into engine and the result obtained was increase in mileage and overall saving of fuel.

Some of the topics which you may underline in your presentation are given below:-

1. Global Positioning System
2. Automatic Park Assist System
3. RFID Technology
4. Traffic Management using Google API
5. Passenger Safety System using multiple sensors
6. Anti Collision Device etc.

It is to note that we are not looking for presentation on above technologies, we are expecting participants to make a presentation on the problem identified by you and if you are suggesting any solution then how will you integrate above given technologies as a part of your solution?

Anything lying in your mind, make it a part of presentation.
We are sure creativity leads innovation.

Is presentation in group is allowed?

Yes it is allowed subject to maximum of three participants in a group.

Do I use images, videos or audio in my presentation?

Yes you are allowed to use above mentioned things but in any case you will be required to end your presentation in 5 minutes maximum.

Unmanned Ground Vehicle

Understanding Topic

Heard about Mangalyaan? Yes, this is one of the masterpiece of human innovation and presentability of available technologies in applied robotics, Unmanned Ground Vehicle(UGV) is just a name but basically its a combination of working of multiple type of sensors, microcontrollers with a locomotive mechanism.

Do you know that Mangalyaan was equipped with sensors that can sense Methane, Carbon Di Oxide in atmosphere of Mars and also it was provided with features which can deal with contingency situation, well this example was for just explanation of topic but possibilities are immense.

Some other examples of UGV are:-

1. Fire Fighting Robot
2. Counter Terrorism Robot
3. Survillieance Robot

Starting with presentation

All required is to identify a problem near you and to provide a solution which reflects zero human intervention in problem solution implementation under controlled conditions, you may first start with problem identification then gradually move on with its solving approach highlighting various type of sensors or mechanical systems required for it or even both of them in any combination.

Anyways start designing a system which can work on multiple type sensors, based on microcontrollers and centrally controlled with an emphasis on it mechanical geometry and locomotion.

On a one line note, its all about presentation on "identification to implementation"

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Smart City Development

Understanding Topic

All over the world, concrete steps are being taken to make a special type of city, we call them a smart city. Smart Cities use new technologies to help them reach their diverse goals more efficiently. Some cities are being made smarter, and some new cities are being designed to be smart from their very beginnings. The fundamental of designing a smart city is to provide cost efficient services to their residents and sometimes goal is to make cities that are attractive from a variety of viewpoints which includes, making of cities that are both economically vibrant and also environmentally friendly. As environmental and energy problems grow increasingly severe, and the need for sustainable growth increases, smart cities are becoming more necessary and more popular.

Here in this topic we need to design a system which can help us to reduce carbon footprint by saving electricity(energy) or even help us in controlling of city traffic using technologies like RFID, GPS etc.

Starting with presentation

Identify various problems in your city and simply think what needs to be done if you want to make your city cleaner, greener and friendlier. It starts from a road in front of your house with huge traffic, to the problems related to garbage disposal in your vicinity, sometimes you see street lights are on in the middle of day and sometimes crime take place in the dark street in old city area, problems are countless but even solutions are multiple.

So here we are expecting a solution from your end which can provide us with some sustainable model and when we are talking about solutions then ofcourse there will be some requirement of huge mechanical systems, electronics systems, sensors and microcontrollers etc.

So leaving all this creativity on you, its better to look at our city with one new dimension.

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