

An innovative idea might change your life

by Saloni Mittal

Bangalore: Students from Jamia Milia Islamia never imagined that a mere thought will become instrumental in changing so many lives across India. The Hybrid Human Powered Electric Vehicle, which won the first prize at the third edition of the annual national intercollegiate engineering design contest *QuEST Ingenium 2013*, was among many creations displayed by young engineers from across the country. The runners up were Siddaganga Institute Of Technology, Tumkur for their 'Intelligent Wheelchair' followed by the Indian Institute of Technology, Delhi for their affordable cell-phone based indoor navigation system for the visually-impaired.

Making life simpler

Students from Jamia Milia Islamia showcased the Hybrid Human Powered Electric Vehicle at the event. They presented the vehicle as a substitute for the current public transport. "We are trying to revamp the existing auto rickshaw and cycle rickshaw by providing an eco-friendly solution. The vehicle can be operated manually and it also has an electric motor," said Alan Babu. Not only environment friendly, the vehicle is also a good option for the physically challenged. For future scope, it will be modified so that the physically challenged can also drive the vehicle. "For example, for people with no hands there will be



Above: Jamia Milia Islamia bagged the first prize at *QuEST Ingenium 2013*. Siddaganga Institute Of Technology with their 'Intelligent Wheelchair'

a pedestal for their feet with sensors," he added.

The vehicle is also equipped with a mobile charger and green water filter. The students claimed that the vehicle can run upto 100 km at a time.

"Autos are very expensive. We are trying to bring down the cost of the product and it will be charged at ₹15,000," said Prateek Bansal. After a market research, the boys found out that even rickshaw pullers are open to the idea. A lot of them face health issues because of pulling heavy-weight. "A lot of auto drivers are cheated when they take the auto on loan. They have to pay the rent their entire lives. Here, we have come up with a solution for that. After 25 months of procuring the vehicle, they don't need to

pay rent. We will also provide free charging facilities," said the engineers.

Giving them eyes

Engineers from IIT Delhi came up with an affordable cell phone based indoor navigation system for the visually impaired. The device consists of three modules. One that the user wears on the waist, one that is installed on the wall and an android application. "We will place the wall module in the building and the map can be downloaded from the android application. So, when a user enters a building, he can specify his destination for example first floor, third room. Through messages he will be guided to his destination," they explained. Spending time with the visually-impaired over a



period of time, led the team to build this device. "Similar ideas were being developed in our system technology lab in college. We got to interact with several visually-impaired people and that is where the idea stemmed from," said Dhruv from the team.

Intelligent wheelchair

Students of Siddaganga Institute Of Technology,

Tumkur were applauded for inventing the Intelligent Wheelchair. After doing a market survey on manual and electric wheelchairs, these students realised that there was no real solution to problems faced by the physically-challenged. Complete with three different controls systems, the third generation wheelchair makes life easier for the disabled. The wired control comes with buttons

and the person sitting on the wheelchair can control the vehicle easily. The tilt control can be attached to the head of the person. Through head movements, the vehicle can be steered. The wireless control can be used by the assistant of the disabled to move the vehicle," they said.

Cleanliness freak robot

Though all inventions revolved around social issues, students from Dayananda Sagar College of Engineering, Bangalore stood out with the High Clean Spiderbot. Complete with brushes and wheels, the robot is designed to clean glasses of high rise buildings. "It works on the principle of suction. It can climb vertical glass surfaces. It can also used for inspecting bridges and gathering information," said the students.

The idea was born two years ago when Shanmugha TS, witnessed a horrible accident in Mumbai. "I had gone for an event. After the event we were all standing out when a man, who was cleaning window panes on the opposite building fell and died. That's when the idea struck me," he said.

The engineers said that the robot is an effective device for a city like Bangalore which is flooded with high rise glass buildings. With this invention, companies don't need to hire a team of cleaners. They can cut down on their costs too. However, the engineers said that still a lot of work needs to be done before the product is finally launched in the market.

Your car won't start if you are drunk

Four engineering students develop a prototype which senses liquor smell and locks the ignition system if driver is tipsy

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It's time to bid goodbye to the sniffing or breathalyser-toting cops in the night. All you need to do is install a sensor near the car dashboard which, on sensing the smell of liquor, will lock the ignition system and refuse to start. Thus, your life as well as those of others are saved. Well, this is just a prototype developed by four engineering students.

The futuristic device named Sarathi, developed by Santosh S Malagi, Pruthviraj M, Ramachandra U and Vijaykumar H, all students of Kamala and Venkappa M Agadi College of Engineering and Technology, Laxmeshwar, will check drunken driving and alert drivers (if they have not worn seatbelts). The project was one of the 10 best selected as part of the annual



The Sarathi project by students of Kamala and Venkappa M Agadi College of Engineering and Technology was among the 10 best projects at QuEST Ingenium

pan-India innovation contest, QuEST Ingenium 2013, held in the city on Friday. As many as 1,410 students participated in the event.

Malagi said a large number of acci-

dents occur and innocent lives are lost because the driver is in an inebriated state. "To avert such incidents, a sensor is placed close to the steering wheel (near the dashboard). When the sen-

sor detects the smell of liquor, it will send a message to a memory card connected to the internet. The card will also send out information about the vehicle (registration details) to the law enforcement agencies and lock the ignition system."

He said the system will use a controller area network (CAN) to link sensors and actuators for monitoring critical vehicle parameters like vehicle speed, engine speed, fuel economy, engine temperature and smoke emissions in real time.

Pruthviraj, another group member, said though warning systems exist to inform drivers about possible malfunctions, most of them are limited to high-end vehicles or have limited functions. He said, "At present, there is no way to alert the driver when he is exceeding the speed limit or when the coolant temperature has re-

ached alarming levels."

Ramachandra said aggressive driving (speeding, rapid acceleration and braking) results in waste of fuel and brings down mileage by 33 per cent on highways and by 5 per cent on city roads. "The lack of a means to alert the driver about fuel waste was what motivated us to develop this model."

SUGGESTS RIGHT SPEED FOR MILEAGE

The students' system also suggests to the driver the right driving speed to obtain the best mileage out of his vehicle. Malagi said, "This data is made available to the driver via a digital instrument cluster, which helps the driver improve his driving habits."

"The driver will also be warned of a possible error or failure of a vehicle component so that preventive/corrective action can be taken at the earliest."

Students bring out their inventive best at fair

Undergraduates develop intelligent wheelchair

BANGALORE: Four students from Siddaganga Institute of Technology, Tumkur, claim they have designed and developed an affordable, intelligent wheelchair which is useful not only to disabled persons but even senior citizens, enhancing their mobility and independence.

"The prototype cost us around Rs 5,000. Once commercialised, it will cost Rs 20,000-Rs 25,000, way cheaper than similar products available in the market ranging between Rs 80,000 and Rs 95,000," Meghana S, one of the students said.

The chair can be operated in three modes. The wired, manual-control mode, wherein the person controls the chair's movement through a keypad interface. Second, a wireless remote-control mode, using an RF module, and third, special control (tilt control) mode wherein the person can operate the chair by head movement," Chandan S S, another

team member said.

The chair is equipped with emergency alert system, synced with global positioning system (GPS) and GSM. "While GPS is used to identify the location of the chair, it will be loaded with emergency numbers, to contact which GSM will be used," Meghana said, adding all that the person needs to do is press a button on the keypad. The team has also incorporated an obstacle-detection system, but more work needs to be done on the same.

Among similar inventions displayed at QuEST Ingenium 2013, two other teams from Karnataka, Dayananda Sagar College, Bangalore and Angadi Institute of Technology and Management, Belgaum, were attractive. Dayananda Sagar's High Clean Spiderbot promises a host of features, including intelligence gathering about 'hostile situation,' so as to launch a cleaning programme it is also capable of inspecting structures and cleaning them.

Angadi Institute of Technology & Management presented their technology—Witcricity, an embedded system. The team explored the options of having wireless electricity.

DH News Service



QUEST

BORN TO ENGINEER

JAMIA MILLIA TEAM'S UTOPIA WINS 'QUEST INGENIUM 2013'

Bengaluru: Engineering services company QuEST Global on Friday announced the winners of the third edition of its annual national inter-collegiate engineering design contest, Ingenium. A team of students from Delhi's Jamia Millia Islamia won the first prize for their 'Hybrid Human Powered Electric Vehicle', which they called UTOPIA.

The runners up were Siddaganga Institute Of Technology, Tumkur, for their 'Intelligent Wheelchair'. IIT Delhi won the third prize for their 'affordable cellphone-based indoor navigation system for the visually impaired'. The awards were presented by Dr. Matthew Orchard, VP and Head of Engineering Wing, Airbus.

An elated Prateek Bansal from Jamia Millia Islamia said, "Our project, the Hybrid Human Powered Electric Vehicle, is designed to be an eco-friendly substitute to the existing local transport options available in our cities. This could be an alternative to the obsolete cycle-rickshaw or the polluting autorickshaws."

The winners took away a cash prize and an all-expenses paid visit to Airbus' wing assembly plant in Broughton, UK.

The entries invited earlier this year were from final year B.E/B.Tech engineering students from core engineering domains spanning Aerospace & Defence, Aeroengines, Mechanical, Mechatronics, Power Generation and Production Engineering from across India. Ten teams were shortlisted from among 1413 entries to travel to Bengaluru and present their projects to a panel of experts.

QuEST Global COO Dr. Ajay Prabhu said, "The Engineering Services industry in India is expected to quadruple to \$40B by 2020, requiring more than 10 lakh core engineers of excellent quality. QuEST has a tradition of working closely with educational institutions to encourage future engineers of India. Ingenium has come a long way in bringing out the talent of engineering students from across the length and breadth of the country".

ಕ್ಲೆಸ್ಟ್ ಇಗ್ನೇನಿಯಂ:

ಅಂತಿಮ ಸುತ್ತಿಗೆ ಮಣಿಪಾಲ ಎಂಜಿನಿಯರಿಂಗ್ ವಿಶ್ವವಿದ್ಯಾರ್ಥಿಗಳು

ಮಂಗಳೂರು, ಜೂ.13-

ದೇಶದ ಎಂಜಿನಿಯರಿಂಗ್‌ಗೆ
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ಇಗ್ನೇನಿಯಂ ಅಂತಿಮ ಸುತ್ತಿಗೆ
ಮಣಿಪಾಲ ಇನ್ಸ್ಟಿಟ್ಯೂಟ್
ಆಫ್ ಟೆಕ್ನಾಲಜಿ ಮಣಿಪಾಲ
ತಂಡ ಪ್ರವೇಶ ಪಡೆದಿದೆ.

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ಬೆಳವಣಿಗೆ ಸಾಧಿಸಿದೆ.

ಈ ವರ್ಷ ಕ್ಲೆಸ್ಟ್ ಇಗ್ನೇನಿಯಂ
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ನಡೆಯುತ್ತಿದೆ.

క్వెస్ట్ - 13 విజేతలుగా ఢిల్లీ కళాశాలలు

న్యూఢిల్లీ: క్వెస్ట్ గ్లోబల్ ఆధ్వర్యంలో నిర్వహించిన మూడవ జాతీయ అంతర్ కాలేజీల ఇంజనీరింగ్ డిజైన్ పోటీలో రెండు ఢిల్లీ కళాశాలలు విజేతలుగా నిలిచాయి. జామియా మిల్లా ఇస్లామియా, ఐఐటీ ఢిల్లీ సంస్థలు మొదటి రెండు స్థానాల్లో ఉన్నాయి.

జామియా మిల్లా విద్యా సంస్థ విద్యార్థులు హైబ్రిడ్ హ్యూమన్ పవర్ట్ ఎలక్ట్రిక్ వెహికల్ రూపొందించిన ప్రథమ స్థానంలో నిలిచారు. తుంకూర్ సిద్ధగంగా టెక్నాలజీ విద్యార్థులు ఇంటిలిజెంట్ వీల్ చైర్ రూపొందించి రెండో స్థానంలో నిలవగా, సెల్ ఫోన్ ఆధారిత ఇండోర్ నేవిగేషన్ సిస్టమ్ను ఐఐటీ ఢిల్లీ విద్యార్థులు రూపొందించారు.

