

# *GTU INNOVATION COUNCIL*

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| <b>Student Startup Support System<br/>(S4)</b>                                    | <b>Gujarat Technological University,<br/>Ahmedabad</b>                            | <b>GTU Innovation Council<br/>(GIC)</b>   |

**A**

## **Report on**

### **“Project Fair organized by Sigma Institute of Engineering, Vadodara”**

**Date:** 27th May 2015

**Venue:** Sigma Institute of Engineering, Vadodara.



## **Project Fair 2015/Poster Presentation**

Sigma Group of Institutes brings to Gujarat a world class institute for technical education and a complementary faculty that lives up to the global standards of excellence in technical education. Built on several acres of countryside and far from the madding crowds, the institute is cosmopolitan in character, truly global in outlook yet deeply rooted to the traditions and values of the Indian culture.

Sigma Institute of Engineering a project fair 2015 is innovation of the students of the 8<sup>th</sup> semester. The innovative work done by the student under the guidance of professors of the different branches has been shown by a poster in project fair 2015. In this event director, principal, professors, non-teaching [technical] and students are highly involved to get a success of project fair 2015. This project fair is based under the guideline of GTU for 8<sup>th</sup> semester and it includes the poster presentation also. The experts were called from the well-known industries like, **Mr. Manish Joshi**, Technical Consultant, Transpack Industry Ltd, for (Computer Engineering & Information Technology department) **Mr. Bharat Trivedi**, B.E. Production Aditya Engineering Works (Mechanical Engineering department) **Mr. Hemendra Atodariya**, Assistant Manager ColambiaPakona Engineering Pvt. Ltd.(Electronics & Communication and Electrical Department).The following information is showing the report of project fair 2015/poster presentation.

At Sigma Institute of Engineering, we understand the challenges that are in store for students. Our mission is to support students in meeting the challenges they face, and to help them reach their goals.



## Mechanical Engineering (19)



A die is a specialized tool used in manufacturing industries to cut or shape material mostly using a press. Products made with dies range from simple paper clips to complex pieces used in advanced technology. Die introduced by us can reduce severe time in production as it will be able to produce two washers simultaneously which in turn will result in reduction in time. Progressive die will perform four operations in one stroke and washer thus manufactured will be in progressive step and thus productivity of washer will be increased. **Got 1<sup>st</sup> prize**

Study carried out for combination of LPG and kerosene is used for one cylinder four stroke petrol engine with modification. Performance of this engine will be compared with the conventional petrol engine. It is proposed to carry out performance and pollution test of this particular engine using combination of LPG & kerosene and each fuel separately.

**Got 2<sup>nd</sup> prize**

In drilling operations, work piece geometric dimensions and tolerance (GD&T) requirement is an important requirement for many applications. This experimental studies are an evaluation of cutting speed , feed rate and cool ant ratio in drilling operation performed on EN8,EN24& EN31asaworkpiece material using cobalt alloy steel drill with point angle 135°and helix angle 30°.An analysis of variance(ANOVA) is performed and effect of the control factor at different levels are analyzed to identify the optimum drilling condition. **Got 3<sup>rd</sup> prize**



Study was carried out for muffle. Muffler is used for noise reduction purpose. Muffler design is done by mathematically as well as using CAD software. From this project it's realized that there are so many ways to reduce the noise level of IC engine. There are new designs which are more suitable for the noise reduction and backpressure control.

### **Feedback of Industrial expert:**



It gives me great pleasure to be here in Sigma Institute of engineering college today. It is very much interesting to see all the projects carried out by students under guidelines of faculty members. I congratulate all students who participated in the projects by putting their best efforts to perform well. All the projects are attractive and well laid. I am extremely happy to announce prize to the best projects. I am personally overwhelmed and thank you very much for the considerable honor given to me.

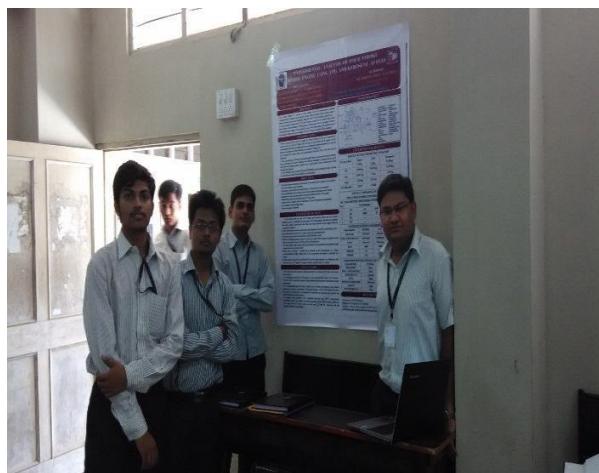
Once again thanks to Sigma Institute of Engineering.

**Mr. Bharat Trivedi  
B.E. Production  
Aditya Engineering works.**

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### **Feedback of students:**



First of all we would like to thank our university **GTU (Gujarat Technical University)** for giving us opportunity to express our skills in form of poster presentation. Also thanking to our institute and guide for giving good guidelines for our project. **PMMS** activity developed by **GTU** is also good for us in completion of our project. Finally thanking our institute **(Sigma Institute of Engineering)** for organizing poster presentation. It was good experience to show our ability.



It was a great pleasure to give poster presentation in front of very experienced person Mr. Bharat Trivedi. We are thanking **Gujarat Technical University** for developing online **PMMS** activity. It was very helpful for completion of our project. We are also thank-full to **Sigma Institute of Engineering** for scheduling a project fair with poster presentation. It was a good experience for us.



It was a great experience for us to show our projects in front of expert from well-known industry (Aditya engineering works) in form of poster. Good guidelines given by our guide and expert. We are thanking to our institute **(Sigma Institute of Engineering)** for giving us opportunity to show our skills in front of faculties and expert. We are also thanking full to **Gujarat Technical University (GTU)** for expressing our projects in the form of poster presentation.

## Computer Engineering (07)



CorpSo (Corporate meets Social) is a full featured android application allowing the Project Manager to track and manipulate the project work. Project Manager can add a new project and assign employs who will work on the project, manage resources required for project, allot employs their work. On client side, it will show the progress report of the project.



Laksharth is a Sanskrit word. It's made from "laksanika + Samarth". Meaning of laksanika is "technically teaching" and meaning of Samarth is "able". Together it becomes "able to teach technically". Main aim of laksharth is to convert all government school in to a school where everything is handled by a computer system, so all task will be in scheduled manner, in professional way with monitoring. In now day's image of government school is spoiled in peoples mind because of its working style, management and poor education quality.



E-mail is one of the most common and reliable methods of communication for both personal and business purposes. This project deals with full featured mail server identifying users to send and receive mail. This web application will allow multiple users with distinct usernames to login and have personalized mail information. Each user willing to avail the services offered by the mail server application should have registered his/her profile. This is made possible by verifying the user account by verification code and notifying each user. This application has rich text editor for user to compose mail, categorize mail folders with filter facility to classify mails according to keywords. Further it has SMS notifications, online/offline chat, groups, events/tasks, manage profile, address list, synchronization, blogs, forums, widgets, and other.

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We are developing screen-scroller puzzle 2D physics game which involves a character which travels on the guidelines of lines. Now twist is that a single individual line has its own characteristics depending on its physics. For example one line accelerates the ball, other line decelerates it and similarly there is different physics acting on lines. The goal of player would be to reach from starting point of level to end point of level carrying ball using lines to use at appropriate places.



Among all the 20 posters that were kept for presentation, "Physics Rider" was awarded the best project. It was a 2D physics game. It contained feature to design lines on which a rider rides. Each line had its own characteristics.

### **Feedback of Industrial expert**



*Mr. Manish Joshi  
Technical Consultants,  
Transpack Industry Ltd*

He is a very well industry experience and shares their work experience to students and all staff about real time scenario. They also suggest to some project implement in real time for civilians like, e-healthcare and crime management. He gives idea about latest technology like, cloud computing, security and database for future project implementation. He also impress to student presentation and their project implementation work.

## **Feedback of students**

By the project fair we got the opportunity to view the others idea so it was great.

- Ravi Tilekar(8<sup>th</sup>SEM, CE)

We got the knowledge from the expert that how to make our project more effective.

- NikhilSabani(8thSEM, CE)

We are so much happy for the special care of our project by the GTU

- PanchalKinjal(8thSEM, CE)

We got the chance to represent our work to experts through this fair.

- Patel Hardip(8thSEM, CE)

## Information Technology (16)



Geo processing is a GIS operation used to manipulate spatial data. To analyze the region like city, town or country and quick decision are taken on basis which it's implemented. Geo Server - an open-source server written in Java - allows users to share process and edit geospatial data. Scope of this project is to analyze the region/city if the new utilities (gas n/w, electricity n/w, water supply n/w) are added. It is used to analyze natural disaster, weather forecasting, used to create network related projects from this server.

This project gets first prize in IT Dept.



Everyday new businesses surface up. As a start-up they have to face their own challenges. But one challenge needs to be addresses upfront-managing their business. Problems are (1) Late delivery of components/services and its penalty calculation. (2) Selection of appropriate supplier. (3) Maintenance of production schedule. (4) Profit/loss analysis. The system offers the prospect of more efficiently matching suppliers in the face of changing market conditions.



E-Health care is a project will reduce the man effort given by a patient and doctor. Here when a patient approaches doctor then a doctor enters the detail of a patient including every detail of him, including all the reports and diagnoses done by that doctor. Also, this portal will contain all the details of doctor with their specialization and degree including their location and time of OPD.

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Civil Registry is the online system for agency to help the Indian citizens to apply for their government records like driving license, voter's ID card, PAN card etc. And register certificates like birth, death, marriage etc. The main purpose of the web site is to reduce the effort by candidate and save his time and avoid unwanted rushes at the government offices and assure a smooth working schedule at government offices.

### **Feedback of industrial experts**



He is a very well industry experience and shares their work experience to students and all staff about real time scenario. They also suggest to some project implement in real time for civilians like, e-healthcare and crime management. He gives idea about latest technology like, cloud computing, security and database for future project implementation. He also impress to student presentation and their project implementation work.

*Mr. Manish Joshi  
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### **Feedback of students**

Project fair is great opportunity to express our presentation through poster over industries experts

- PanchalMonali, PagedarRutika(8<sup>th</sup>SEM, IT)

For project, GTU have PMMS portal is easy to understand and reduce the work of documentation in project report. One thing is very good about PMMS portal, it is updated on regularly time like, PPR, PDE and give sufficient time to complete our work. And they also provide facility like, plagiarism for report checking and it also generate certificate of project report.

- Patel Chhaya, GohilDevangini, VaidhyaJyoti(8<sup>th</sup>SEM, IT)

Project fair is very good concept for 8<sup>th</sup> semester students because experts are come and see our project and give their review about project.

- Patel Miral, ChuranaTulsi, Patel Neha(8<sup>th</sup>SEM, IT)

Project fair is a good activity to us because student aware that how to make a poster and how to represent it. About PMMS portal is good thing by student for regular activity of their project.

- Patel Shrefali, RangapariyaNimisha(8<sup>th</sup>SEM, IT)

## Electronics & Communication Engineering (11)



System does not use any of internet device or GSM based protocols. The project deals with displaying the text message on LCD and audio message to the speaker by means of wireless media.

Basic concepts of radio communication are to utilize a wireless communication channel between Computer and LCD display and between audio playback module/microphone and speaker via RF module. On the receiver side a LCD display unit and a speaker is used for displaying the text and audio messages.

Design of this system for short distance communications which cover lowest 50m of area and highest up to 100m without any interference. This project **gets first prize** in EC Dept.



A robotic arm is robotic manipulator, usually programmable, with similar functions to a human arm. Humans pick things up without thinking about the steps involved.

Three joint robotic arms which can be used in industries to do repetitive work such as moving the things from conveyor to another place; sensor is used to detect the obstacles.

Here when the wrist will move in upward direction then the robot will make progress in forward direction and if the human arm is moved in the downward direction then the robot will take action in backward direction.



Security systems are necessary during any emergencies that occur at Banks, Houses, and Offices. Basic concept is wireless protocol named GSM, DTMF, RF and a camera for live streaming. If a wrong card is entered, then an SMS will be sent to authorize person and an indication would be given to the security man by a buzzer, MS would be sent using GSM protocol. There would be a live streaming using camera. DTMF is used to access the lock of the inside doors of the infrastructure cell phone of the authorized person.



Blind people face every day problems in commuting from one place to another, be it in door so or on the road. A voice recognition system identifies the voice and according to input processes the destination.

This system understands obstacles around the subject up to 500cm in front, left and right direction using an array work of ultrasonic sensors. It effectively calculates distance of the detected object from the subject and prepares navigation path accordingly avoiding obstacles.

Prerecorded speech message stored in APR9600 flash memory is invoked. Blind can use an RFID equipped ETA to determine their location as well as software that can utilize this localization data to generate vocal directions to reach a destination.

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Under the pressure of cost reduction and productivity improvement, a new methodology which provides a fast inspection of defective objects and generates a real time motion trajectory for processing objects being conveyed with high speed in an industrial large-scale production.

The image data obtained by a multispectral imaging system is analyzed within image processing algorithms using classification methods based on support vector machine. These data provide a basis for a path planning algorithm which considers location, orientation and arrangement of defects on the conveyed objects. Selective processing tool guided by the planned path is motion controlled.



Many areas of world are getting affected due to natural calamity.. Disasters create emergency situations to provide basic services to the victims must be coordinated quickly. Many times we observe that many people dies by trapping in these disasters but the people also dies on large scale just because they cannot get help at instant time or the help provided to them is late.

Hear we design a rescue robot system based on wireless sensor network technology to help the people on time which are trapped in natural calamity like disaster, earthquake, wildfires, floods etc. It gives timely & accurately reflect dynamic situation of human in disaster region.

## **Feedback of industrial experts**



*Mr. Hemendra Atodariya  
Assistant Manager  
Columbia Pakona Engineering Pvt. Ltd.*

After observing the exercise which was allotted by GTU as a part of Final year project, the students got real appreciation, at the same time it increases innovative thinking. Also students get motivation for attaining the different conferences. It was a great experience to have such a knowledge regarding all innovative projects. It helps students to direct their mind towards innovation & team spirit. I am heartily thankful to Sigma Institute of Engineering for inviting me such kind of innovation exercise.

## **Feedback of students**

Poster making was an awesome experience we totally enjoyed it. While preparing for poster, we felt we were laying the foundation stone for our industrial project. It's an effective way to represent maximum project detail in a minimum space with an attractive look.

- KIRAN CHAHAL, NITU PAL, SHEFALI DAVE (8<sup>th</sup>Sem, EC)

It was great innovation that actually feel us what are the major practical applications regarding to our project. It improves our creativity.

- BHAVSAR RONAK, JADAV HEMAL, SONI KULDEEP, CHATROLA KRUNAL (8<sup>th</sup>Sem, EC)

Due to PMMS exercise we were able to understand our project in a much better way which helps us to explain the application of project on a better way. At the same time it improves our mind power & group coordination.

- JAYKISHAN PARMAR, JOYSON BEJOY, KETAN PADIYAR (8<sup>th</sup>Sem, EC)

## **Electrical Engineering (09)**



The principle of multiplying voltage by charging capacitors in parallel and discharging them in series is used in the voltage multiplier circuit. The project is designed to generate high voltage DC using Marx generator principle by using the diode chains, using MOSFET and capacitor stacks. This principle is used to generate voltages in the range of KV's in real-time for testing the insulation of the electronic appliances



The tap changes the ratio of a transformer by adding turns or subtracting turns from either the primary or secondary winding. Therefore it is called Regulating or Tap winding which is connected to the transformer. A DC motor is a mechanically commutated electric motor powered from direct current (DC) & it converts electrical energy into mechanical energy, which is its principle. The speed control is achieved by PWM technique. (This project got first prize in Electrical Department)



Expanding global markets have created a demand for what have become known as universal-input power supplies, that is, power supplies that allow device to be plugged into wall outlets anywhere in the world. The proposed power supply will be able to operate directly from 85V AC/DC to 265V AC/DC power lines without the use of selector switches or jumper and give output of constant 24V DC with 4A current capacity. Among different topologies Fly back topology is best for this proposed universal power supply.



The electrical energy is almost widely generated, transmitted and distributed in the form of alternating current. So in this power system power factor comes in to picture. In the power system most of load is inductive in nature and hence power factor is a lagging in nature. Low power factor causes highly undesirable as causes an increase in current, so losses is also increase. We following materials...  
1.Power factor controller  
2.Power capacitor bank

### **Feedback by Students**

Project fair has given a golden opportunity to express our presentation over through poster with industry experts.

- Chaudhary Jinal, Patel Mittal (8<sup>th</sup> SEM, Electrical)

GTU has introduced PMMS portal that is easy to understand and reduced the work of documentation in project report. PMMS portal is updated regularly with the contents like, PPR, PDE and give sufficient time to complete our work. And they have also introduced plagiarism for report checking and it also generate certificate of project report.

- Patel Chirag, Rana Shah Purvang(8<sup>th</sup> SEM, Electrical)

Project fair is very good concept for 8<sup>th</sup> semester students as experts go through the projects and gives the reviews and ideas for future work.

- Patel Janki, PAncholiAbhishek(8<sup>th</sup> SEM, Electrical)

By going through Project fair student are aware of making poster and presentations.

- Mehta Vaidehi, MahantNilanshu(8<sup>th</sup> SEM, Electrical)

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## **Civil Engineering (06)**

### **Title:- Comparative Case study of Conventional Steel Building and Tubular section**



A live example of MAKTEL PVT. LTD. Situated at Waghodia GIDC is taken for the project. Conventional steel bldg., PreEngg. Structure and Tubular section concepts were used for the same for economy. Also the estimation is done for all these methods and cost comparison is also done for the same.

### **Title:- Soil stabilization using fly ash and rice husk ash.**



In this project a study was carried out to work the improvements in properties of expansive soil of Karjan with mixer fly ash and lime in various percentages. The test results such as liquid limit, standard proctor compaction, CBR test and free swelling test obtained on expansive soil mixed at different proportions of lime and fly ash were carried out and results obtained were compared.

### **Title:- R.C.C. design of Lift Well for six storied hospital building.**



Existing hospital building was considered as a case study for the project. The lift well is designed for a lift having capacity of 20 persons and also necessary structural elements like shear wall, lift well, beam, columns, etc... were designed considering the effect of wind load as well as earthquake load.

### **Title:- Axial Flexural Interaction of Steel Beam-Column and Comparison of Codes. (Got the 1<sup>st</sup> prize at Institute level)**



In this project a simplified procedure to design a steel beam-column by providing design aids in form of tables. Further the comparison of the beam-column design by IS-800 and AISC-360 is and to find out which design is better.

## Feedback of industrial experts



The expert and judge for this Project Fair-2015 was Dr. Paulomi Vyas for the civil final year poster presentation students. She gave her ideas and motivation to the students. Also inspired the students that how they can extend their study and their project can be implemented in the field and day to day life.

***Dr. Paulomi Vyas  
Principal,  
Sigma Institute of Engineering.***

## Feedback By Students



### **SHASHIPRAKASH SINGH (Winner)**

"I am very much thankful to the Sigma Institute of Engineering for providing such a platform for the students of final year and giving them the opportunity to present their ideas to the experts who can help them out and show the way for future."



### **ArchitRushi (Runner's Up in the poster presentation)**

"I am very much thankful to the Gujarat Technical University for giving such innovative ideas and guidelines for the students of final year, which will help them to tackle the problems and show their skills in the corporate world in the near future."

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## **Aayushi Darji (Runner's Up in the poster presentation)**

"We are the students of the final year and soon we shall be going to start our carrier. From this event we are able to show our ideas to the expert faculties and other staff members and also we can gain some knowledge from the experts. Thankful to GTU for such programs".



## **Sapara Viranchi (Runner's Up in the poster presentation)**

"I am very much thankful to the GTU and Sigma Institute of Engineering for arranging such event. Also thankful to the PMMS of GTU. From such events the whole project can be summarized in the poster form in the systematic manner, which is easy to explain others."

### **Report By:**

Sigma Institute of Technology, Vadodara

### **Report Edited By:**

Juned Shaikh (GTU Innovation Council)

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