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Dear Readers,



Dr. Anjali Deshpande
Head of Electronics Department

It gives me immense pleasure in putting before you this issue of InSight. In the highly competitive world of technology, one has to keep updating oneself with latest trends. In view of this department has organized one-week Short Term Training program on “Machine Learning and Smart Devices” in the first week of July.

We are also organizing various Value Added Courses for benefit of the students, to make them ready for employment in core industry. These courses are conducted during summer/winter breaks and receive good response from the students.

Department is also gearing up for the upcoming academic session starting from 9th July with a precursor of special sessions for selected subjects that starts from 2nd July. With all these efforts for student support and benefit, we are slowly marching towards our vision.

V! Bicycle : “Multi-Purpose Solar powered bicycle”

Project V! Bicycle is a multi-mode multi-purpose bicycle which can be operated in different modes to exploit the full utility of the bicycle resource available with the Indian citizen. It is designed to be an all-in-1 innovative solution for the common man, who knows the basic operations of a bicycle. It can be normal driven, it can be motor driven, it can be used for exercising, it can be used as an alternate source of electricity. There are different operating modes of multi-modal vehicle.

Guided By: Prof. Shrikant Velankar

Developed By: Revati Naik, Namita Murkar, Karishma Hirve, Rohan Sawant

Project Features: -

- ◆ It is a Solar Powered Multi-Mode Multi-Purpose Bicycle.
- ◆ Ideally suitable as Innovative multi-purpose unit for rural India.
- ◆ Normal mode – allows cycle driven by paddling.
- ◆ Motor mode – drives the Bicycle on motor, speed control by throttle.
- ◆ Exercise mode – Exercise on the bicycle, dynamo charges secondary power – Used for head light, tail-lamp, front panel.
- ◆ Solar panels foldable, charge the batteries when sunlight is available.
- ◆ Dynamo auto-charges secondary power – while paddling, exercising and while bicycle runs downhill.
- ◆ Charging possible from 3 modes – solar, electric point, dynamo.
- ◆ One output point provided – Can be used for lighting LED lantern or bulb or running a small water pump.



Secrets of Research

“Imagination is more important than knowledge; Knowledge is limited but Imagination encircles the World”

Faculty Profile



Name: Dr. Saurav Mitra
Designation: CAO & Professor

Qualification:

Ph.D Electrical Engg; IITB

M.Tech.: Instru Engg; Nanded

B.E. Electronivc Engg; Shivaji University

Teaching Experience: 11yrs

Research Experience: 6 mnth

Achievements: Received Gold medal from Dr.A.P.J. Abdul Kalam; Crompton Greaves Scholarship holder in Ph.D; Rank holder till M.tech.

Faculty Profile



Name: Dr. Sangeeta Joshi

Designation: Technical Advisor & Professor

Qualification:

Ph.D. Electrical Engg; IITB

M.E. Instrumentation Engg, Nanded

B.E. Instrumentation Engg; Marathwada University

Teaching Exp: 28 Yrs

Administrative Exp: 13 Yrs

Awarded Gold Medal from Hon Chief Minister Shankaraoji Chavan; Received Patent from Australian Government; Guiding 5 Ph.D. Students.

In-house Project : V! Chef

The main aim of this project is to avail instant and healthy food in institutions where canteen services are limited and ordering food can be a hassle. The objective is to create a vending machine for delivering hot and hygienic food to people with an easy and user friendly interface and minimum effort. V-Chef is a hot food vending machine which can cook and serve hot dosas.

- ◆ Employees of any institute may not be able to avail canteen services due to limited working hours of the canteen staff. In such situations, they have to resort to the packed food dispensed by vending machines which may not be healthy.
- ◆ V-Chef is a hot food vending machine which can cook and serve hot dosas. It has an edge over canteens due to flexible operating hours. As the cooking process is completely autonomous the product assures hygienic food.
- ◆ The input system is an application on a tablet which will take user input and send this information to the microcontroller through bluetooth communication. The transaction is carried out via Paytm QR code scanning.
- ◆ The batter is stored in a stainless-steel container which is equipped with a nylon gear mechanism for dispensing batter on to the griddle which is placed directly below it.
- ◆ The spreading of batter and the roll up of dosa for serving is done by a ball screw mechanism which traverses linearly and an 'L' shaped arm fitted with a Teflon strip.
- ◆ The cleaning of the arm is done during the time when the batter is being cooked so that no batter comes in contact with the cooked dosa. This is done with the help of a circular nylon brush placed at the end of the griddle pan.
- ◆ The electronics include microcontroller, bluetooth module, relay, power supply boards, motors and motor drivers.
- ◆ The materials that are to be in direct contact with raw materials or the food itself are food grade and non-reactive in nature.

Guided By: Prof. Shrikant Velankar

Developed By: Rashmita Nair, Rincy Joy, Shreyas Gawali and Sanket Makwana.



Secrets of Excellence

“ If you don't Built Dream, Someone else will Hire you to help them Built theirs ”



Pawan Poojary

"I did my masters in the field of Electrical Engineering from IIT. I have done my research work in following areas; **Analysis of Least Frequently Used (LFU) Policy under user freshness constraints:** We analytically obtained content-wise hit-rates for the LFU policy and provided sufficient conditions for the asymptotic optimality of cache performance under this policy. **Accurate approximation for LRU hit-rates under user freshness constraints:** We obtained an accurate approximation for the LRU hit-rates in the regime of large content population. We achieved this by mapping the 'characteristic time' of a content in the LRU policy to the classical Coupon Collector's Problem. **Asymptotic analysis of the Coupon Collector's Problem:** We showed that the waiting time for the Coupon Collector's Problem enjoys exponential concentration about its mean and the concentration becomes sharper with an increase in content population. Further, for Zipf distributed coupon draws, we proved that the waiting time converges in probability to a constant. **Asymptotic bounds on workload fluctuations under Maximum Debt First (MDF) Policy:** MDF is a scheduling policy for wireless networks that are constrained by worst-case throughput requirements. We used the iterated law of logarithms for martingales to bound the workload fluctuations under this policy by a well-defined envelope and thereby provided performance guarantees over short time.

Tantra Vihar 2018: "Annual Project Competition"

Only 15 Best projects per Department having 3 divisions CMPN, INFT, ETRX, EXTC and 5 Projects from BIOM, were selected by Pre-filtering mechanism and only those were allowed to display at the stalls at Tantra-Vihar on 2nd and 3rd April, 2018. Quality of the Project, Timely completion of the Project, Success & Implementation Status of the Project and Academic status of Group members was considered for Pre-filtering mechanism. Chief Academic Officer (CAO), FYPQA members had decided the mechanism and execution of Pre-qualifiers to TantraVihar-2018. There were additional 5 Wild-card entries. On first Day i.e. 2nd April, 2018 there was Mini-Projects Competition and on second day i.e. 3rd April, 2018 there was VIT BE Projects Competition cum Exhibition. The Judges were invited for the evaluation of the projects on display. The judges were from reputed companies / technology consulting firms working in the domain of related technologies at least in the middle management level.



Expert Talk: "Industrial application of Power Electronics; by- R.G.Rane

The guest lecture was coordinated by Prof.Nayana Mahajan. The lecture gave insight to Students for understanding the role of Power electronics in Industrial applications with 3 phase Induction motor. To understand how three phase Inverter are used in smart grid. To understand the Basics of Space vector PWM and basic concepts of power electronics drives used in Industry. Lecture was arranged for the students of B.E.



Aspect's of Progress

" The Struggle you're in today, is developing the strength you need for tomorrow "

Department updates

Kirti Agashe completed her Ph.D. under Dr.Sangeeta Joshi examined by Prof.Ramgopal Rao, Director, IIT Delhi.



Prof.Akshatha Bhat gave an expert talk on "Introduction to Embedded System" for EESA co-ordinated by Prof. Shraddha Panbude.



V! Cart an Autonomous Solar Powered Electric Vehicle made under the guidance of Prof. Shrikant Velankar.



Upcoming Events

1. Induction Program
2. Department Achievements
3. Latest Technology
4. Faculty Achievement
5. Expert Speakers
6. STTP on Machine learning & Smart Devices
7. IEEE Events.

Talk on "LoRaWAN Technology" by Mr. Abhay Phansikar; EESA VIT

EESA conducted a guest lecture on LoRaWAN for the students of S.E., T.E. The event was mainly to familiarize the students with the concept of Low Power Low Range WAN, its function and various applications in day to day life. Mr. Phansikar gave a brief note on basics of LoRaWAN Technology and its use in IoT and AI. He also stated how this low range power wireless area network would help in various projects and future inventions. He further explained how to use the application of low power low range and how it can be helpful to solve the power related issues that may arise. The session was concluded by the Head of the Electronics Department Dr. Anjali Deshpande and as a token of appreciation Mr. Phansikar was gifted.



Student Speak

Last three years as an engineering student of Vidyalankar Institute of Technology was truly an integral and dynamic experience of my life. The life at VIT for a B.E undergraduate is in real sense a journey from a novice to an engineer who has an interdisciplinary knowledge in the field of engineering.

We here at Vidyalankar, as students do experience a digitization of education process and technological advancement being used in most of the academic and administrative procedures in the college. There are various examples which I can put forth like V-Print, which is an integrated printing system, for most of our experiments are needed to be submitted in the printed form along with the block/circuit diagrams or line of code for software based experiments. So to make it convenient for students, one can from any computer system connected to the internet can send the print command of the required document in various printable formats with a couple of clicks. One needs to just scan his or her ID card and get the hardcopies.



There is access to a number of reference books both technical and management in the "Reference section" of the Library. We students do not need to do a lot of paperwork as everything is with the help of computer and internet. And if one does not have that facility at home so he or she could sit in the Computer Center or in any vacant lab and get the work done.

The teaching-staff here is very welcoming towards the doubts of the grads and help us with the best of their abilities. All professors are very encouraging for new innovative ideas and bringing those ideas into the reality. The whole department plays a vital role in the successful development of the final year projects and a lot of efforts are taken to keep records of nuances of the project by each guide. Finally, I would say, Vidyalankar Institute of Technology has envisioned me to see the real life problems with altogether a new perspective, a vision of an Engineer to tackle them with an efficient and sustainable approach for the benefit of the society.

— Siddhesh Soyane

T.E. ETRX Div-A

Chief Editor - Prof. Poonam Shah, Dr. Anjali Deshpande