SVERI's College of Engineering (Polytechnic), Pandharpur
Department of Information Technology
NBA Accredited
TANTRA
(Technology Awareness & Knowledge to Rising Association)
Quarterly News Bulletin
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Issue 01

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Augmented Reality

form of live video imagery that is digitally enhanced with computer-generated graphics. AR can be experienced through headsets that people wear and through displays on mobile devices.

Augmented reality is used to enhance natural environments or situations and offer perceptually enriched experiences. With the help of advanced AR technologies (e.g. adding computer vision, incorporating AR cameras into smartphone applications and object recognition) the information about the surrounding real world of the user becomes interactive and digitally manipulated. Information about the environment and its objects is overlaid on the real world. This information can be virtual or real, e.g. seeing other real sensed or measured information such as electromagnetic radio waves overlaid in exact alignment with where they actually are in space. Augmented reality also has a lot of potential in the gathering and sharing of tacit knowledge. Augmentation techniques are typically performed in real time and in semantic contexts with environmental elements.

Tizen Operating System

-Ms. Samrudhi Saptashwa (TY-IF)

If you list out operating systems currently exist around, there are numerous. It is quite a complex process to maintain different operating systems for each device like Smartphones, Computers, Watches, Televisions, games, IVI (in-vehicle infotainment) etc. The new era of Electronics is advancing towards simplifying this process. The growing Tizen operating system is aiming towards simplifying user needs. Tizen is a Linux-based operating system whose development is guided by the Technical Steering Group, which is an organization that includes both Samsung and Intel. Also, there is a Tizen Association led by a Board of Directors from Samsung, Intel, Huawei, Fujitsu, NEC, Panasonic, KT Corporation, Sprint Corporation, SK Telecom, Orange, NTT DoCoMo, and Vodafone. Tizen Association decides what needs to be done in the OS whereas the Technical Steering Group determines what code is incorporated into the operating system to accomplish those goals.

Flutter

-Ms. Disha Bhattad (TY-IF)

Flutter is a Google's UI toolkit for building fast, beautiful, natively compiled applications for mobile, web, and desktop with one programing language and single codebase. It is free and open-source. Initially, it was developed from Google and now manages by an ECMA standard. Flutter apps use Dart programming language for creating an app. The dart programming shares several same features as other programming languages, such as Kotlin and Swift, and can be trans-compiled into JavaScript code.
Flutter is mainly optimized for 2D mobile apps that can run on both Android and iOS platforms. We can also use it to build full-featured apps, including camera, storage, geo location, network, third-party SDKs, and more.
The first version of Flutter was announced in the year 2015 at the Dart Developer Summit. It was initially known as codename Sky and can run on the Android OS. On December 4, 2018, the first stable version of the Flutter framework was released, denoting Flutter 1.0. The current stable release of the framework is Flutter v1.9.1+hotfix.6 on October 24, 2019.
In general, creating a mobile application is a very complex and challenging task. There are many frameworks available, which provide excellent features to develop mobile applications. For developing mobile apps, Android provides a native framework based on Java and Kotlin language, while iOS provides a framework based on Objective-C/Swift language. Thus, we need two different languages and frameworks to develop applications for both Operating System. Today, to overcome form this complexity, there are several frameworks have introduced that support both Operating System along with desktop apps.

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In this Issue

Message From HOD

It is our pleasure to present first issue of news letter "TANTRA" of our department to all students and faculty members. We have achieved The NBA Accreditation for three years this is the greatest achievement department has. This year department has organized various workshops for student as well as faculty members. This news letter is one of the ways in which we can disseminate the information about department. It covers various technological articles, departmental activities, achievements of students and staff members.

I wish you all Happy *Independence* Day..!

AirZ: Reusable Mask with 3 Active Air-flow Speed

-Ms. Mansi chalkikar *(TY-IF)*

Before a few months ago we are using surgical masks and we experienced they are not comfortable for each one so As Face masks have become an essential accessory in response to the COVID-19 pandemic which is seeing designers created new iterations to enhance comfort like the 'AirZ' reusable face mask. The mask features a built-in fan that will allow users to enjoy accelerated airflow without having to worry about filtering capabilities by sending air through a five-layer filter. Users can choose from three airflow speeds to accommodate wearers when walking, commuting, or even exercising.

Unlike all other masks, AirZ's built-in fan can actively bring clean, fresh, and cool air to you, and all inhaled air goes through 5 protective filter layers giving perfect breathability and eliminating sweatiness inside your mask. Protecting your health is a full-time, all-day priority, which means your mask should be suitable for all of your daily activities so we designed it with that in mind, providing customizable airflow to suit your needs. The 'AirZ' reusable face mask will deliver up to five hours of use per charge and utilizes filters that will capture 99% of particulate matter that comes into contact with it. The mask comes in black and white color options and is designed to meet the standards of ASTM 2101 and PFE. Designed to meet PFE and ASTM 2101 standards, this face mask removes up to 99% of particulates in the air.

5G (Fifth Generation) Wireless Technology

-Mr. Harsh Wangikar (TY-IF)

The search engine major Google has already confirmed that smartphone user base has surpassed desktop user base. If we go back a few years, the maximum RAM in a smartphone was in a few MBs only but now, even the smartphone configurations are competing with personal computers. It is evident that smartphone usage without the internet is barely minimum. With the increased dependency on IoT, internet speed plays a pivotal role.

Most of companies think of future needs, innovations, services that could give a better life to mankind. Keeping this in mind, 5G thoughts were rolled a decade back even before the 4G technology was in place.
Of course, the 4G has been a base to implement 5G. We will discuss about countrywide 5G rollout further in this article.
Internationally India has gained a remarkable name in providing the IT services, major Telecom companies like Reliance Jio is collaborating with Samsung, Vodafone Idea with Ericsson and Airtel with Nokia are developing an effective environment in India.

Recent Trends In IT

EDITORIAL

It gives us great pleasure to present the second issue of our Department newsletter "TANTRA"2020, which gives us the opportunity to focus the achievements in our department and new trends in Computer Engineering field.

We are thankful to all the students and faculties who have contributed during the preparation of this newsletter. We have tried our best and given positive efforts, expecting creative responses from everyone to continue the flow of knowledge through this quarterly newsletter.

Editor
—Mr. S. A. Zambare

Faculty Training

In COVID-19 period all faculties of department has completed online coursera trainings in the filed of programming, networking, cloud computing and IoT.

Wish you Happy 73rd Independence day ...

Our Vision

To Provide diploma education strengthened with basic knowledge and skills along with professional ethics enabling students to reach higher goals in the filed of Information Technology

Our Mission

1. To impart value based technical education in Information Technology
2. To support the students for technical knowledge in the field of Information Technology
3. To make students efficient in various skill sets in Information Technology
4. To encourage students for lifelong learning

Augmented Reality

-Mr. Mayuresh Hivarekar (TY-IF)

Augmented reality is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory. An augogram is a computer generated image that is used to create AR. Augography is the science and practice of making augograms for AR. AR can be defined as a system that fulfills three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects. Augmented reality is technology that combines virtual reality synonymous terms: mixed reality and computer-mediated reality. Although augmented reality has been around for years, it wasn't until Android and iOS smartphones came equipped with GPS, camera and AR capability that augmented reality came into its own with the public. Augmented reality is related to two largely

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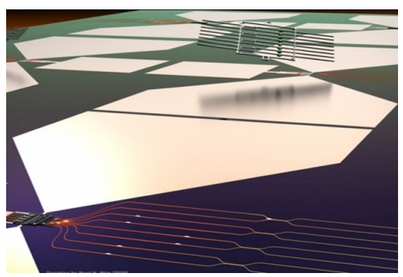
Scaling up the quantum chip

-Prof. G. J. Khare

MIT researchers have developed a process to manufacture and integrate "artificial atoms," created by atomic-scale defects in microscopically thin slices of diamond, with photonic circuitry, producing the largest quantum chip of its type. This graphic depicts a stylized rendering of the quantum photonic chip and its assembly process. The bottom half of the image shows a functioning quantum micro-chipset (QMC), which emits single-photon pulses that are routed and manipulated on a photonic integrated circuit (PIC). The top half of the image shows how this chip is made: Diamond QMCs are fabricated separately and then transferred into the PIC. Millions of quantum processors will be needed to build quantum computers, and the new research demonstrates a viable way to scale up processor production.



IT Department Organized various FDTP's

- One week online FDP on "Moodle Learning System from "
- Two days online FDP on "*Artificial Intelligence with Java Platform"* in association with TechnoWings solution, Mumbai from 29th June to 30th June 2020.
- Two days online FDP on Object Oriented Modeling from 13th and 14th July 2020.

Robotic Process Automation

Prof. M. D. Ghadage

Robotic Process Automation is the technology that allows anyone today to configure computer software, or a "robot" to emulate and integrate the actions of a human interacting within digital systems to execute a business process. RPA robots utilize the user interface to capture data and manipulate applications just like humans do. They interpret, trigger responses and communicate with other systems in order to perform on a vast variety of repetitive tasks. Only substantially better: an RPA software robot never sleeps and makes zero mistakes.

RPA robots are capable of mimicking many–if not all –human user actions. They log into applications, move files and folders, copy and paste data, fill in forms, extract structured and semi-structured data from documents, scrape browsers, and more.

Tiniest secrets of IC revealed with new imaging technique

-Prof. L.B. Dethe

The life-givers of integrated circuits and quantum devices in silicon are small structures made from patches of foreign atoms called dopants. The dopant structures provide charge carriers that flow through the components of the circuit, giving the components their ability to function. These days the dopant structures are only a few atoms across and so need to be made in precise locations within a circuit and have very well-defined electrical properties. At present manufacturers find it hard to tell in a non-destructive way whether they have made their devices according to these strict requirements. A new imaging paradigm promises to change all that.

The imaging mode called broadband electric force microscopy, developed by Dr Georg Gramse at Keysight technologies & JKU uses a very sharp probe that sends electromagnetic waves into a silicon chip, to image and localize dopant structures underneath the surface. Dr Gramse says that because the microscope can use waves with many frequencies it can provide a wealth of previously inaccessible detail about the electrical environment around the dopant structures. The extra information is crucial to predicting how well the devices will ultimately perform.

The imaging approach was tested on two tiny dopant structures made with a templating process which is unique in achieving atomically sharp interfaces between differently doped regions. Dr Tomas Skeren at IBM produced the world's first electronic diode (a circuit component which passes current in only one direction) fabricated with this templating process, while Dr Alex Kölker at UCL created a multilevel 3-D device with atomic scale precision.

MSBTE Summer 2020 Examination: Our Ranker's

Sr. No.	Name of Students	Class	Percentage	Rank
1	Ghadage Priya Sambhaji	F.Y.	96.63	First
2	Jadhav Rutuja Kishor	F.Y.	96.13	Second
3	Mali Akanksha Rajendra	F.Y.	96.13	Second
4	Pawar Renuka VIkas	F.Y.	95.38	Third
5	Khiste Makarand Satish	S.Y.	96.50	First
6	Ghadage Punam Rajaram	S.Y.	96	Second
7	Hivarekar Mayuresh C.	S.Y.	95.38	Third