



**Maratha Vidya Prasarak Samaj's**

**Rajarshi Shahu Maharaj Polytechnic, Nashik**

**Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.**

**RSM POLY**

**Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai.**

**Newsletter Published Monthly**

**Vol: II, Issue: 10**

## **RSM POLY NEWSLETTER – NOV 2020**

### **ABOUT MVP SAMAJ**

The **Maratha Vidya Prasarak Samaj** is one of the most prestigious centers of learning in the State of Maharashtra. It manages 485 educational units and is one of the premier educational hub in the Nashik district.

At present, more than 2 lakhs of students are pursuing education. Over past 106 years, the institute has stood the test of time to become legend of unparalleled stature. History says that the credit for the birth of M.V.P. Samaj goes to the young, enthusiastic & devoted team of social workers and educationists who were inspired by the lives of Mahatma Jyotiba Phule, Savitribai Phule and Rajarshi Shahu Maharaj of Kolhapur. These young leading lights include Karmaveer Raosaheb Thorat, Bhausahab Hire, Kakasaheb Wagh, Annasaheb Murkute, Ganpat Dada More, D. R. Bhonsale, Kirtiwanrao Nimbalkar and Vithoba Patil Khandalaskar, who laid the foundation of the Samaj. They were the men who envisioned the culture and knowledge centric society. The great visionaries of MVP Samaj rightly laid the "Well being and happiness of masses" as the motto for the Samaj.

### **ABOUT RSM POLYTECHNIC**

The **Rajarshi Shahu Maharaj Polytechnic** has been established in the year 2008, at the central place in Nashik. It is affiliated to MSBTE, Mumbai and approved by Government of Maharashtra, DTE Mumbai and the AICTE, New Delhi. The Polytechnic is in the process of Accreditation and Gradation. The Polytechnic has well-equipped and well-furnished laboratories, workshop and hostel facilities. Every department has separate computational facilities along with LAN, Wi-Fi and necessary software. At present the RSM Polytechnic provides three-year courses leading to Diploma in Engineering of MSBTE, Mumbai in the five disciplines: Mechanical Engineering, Computer Technology, Electronics and Telecommunication Engineering, Information Technology and Electrical Engineering.

### **VISION AND MISSION**

#### **VISION:**

- To Empower the Common Masses by providing Quality Technical Education.

#### **MISSION:**

- To create and implement innovative best practices to achieve academic excellence.
- To enhance the overall development of students by imparting essential skills.
- To inculcate principles of professional activities by promoting industry institute interaction and entrepreneurial skills.
- To create an environment awareness for sustainable development.

**Admissions Open for First Year and Direct Second Year Diploma Engineering**



मराठा विद्या प्रसारक समाजाचे  
**राजर्षी शाहू महाराज पॉलिटेक्निक, नाशिक**  
उदोजी मराठा बोर्डिंग कॅम्पस, गंगापूर रोड, नाशिक-१३  
फोन नं. ०२५३-२३११०१८, २३११०१९

**प्रथम वर्ष व थेट  
द्वितीय वर्ष प्रवेश**

शाखा	कोड	क्षमता
मेकॅनिकल इंजिनिअरिंग	524761210	60
कॉम्प्युटर टेक्नोलॉजी	524725110	60
इलेक्ट्रॉनिक्स अँड टेलीकम्युनिकेशन इंजिनिअरिंग	524737210	60
इन्फॉर्मेशन टेक्नोलॉजी	524724610	60
इलेक्ट्रीकल इंजिनिअरिंग	524729310	60

**प्रवेशासाठी पात्रता**

प्रथम वर्ष	थेट द्वितीय वर्ष
* इयत्ता १० वी पास	* इ. १२ वी सायन्स, एम.सी.व्ही.सी., व्होकेशनल, टेक्निकल * आय.टी.आय. (कमीत कमी दोन वर्षांचा कालावधी)

वैशिष्ट्ये : \* उच्च शिक्षित व अनुभवी प्राध्यापक वर्ग \* सर्व प्रकारच्या शासकिय स्कॉलरशिप योजना लागू \* नाशिक शहराच्या मध्यवर्ती ठिकाणी  
\* सुसज्ज प्रयोगशाळा व सुसज्ज ग्रंथालय \* कॅम्पस इंटरव्ह्यूद्वारा नोकरी मिळविण्याची संधी.

**MVP RSM Polytechnic FC**

- MVPS's RSM Polytechnic has authorised Facilitation Center for First Year and Direct Second Year Diploma Engineering Admission



FC takes all precautions to avoid spread of Covid-19 with social distancing guided by DTE.



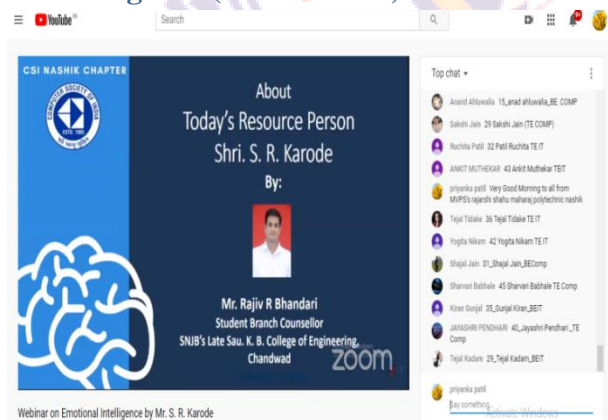
## **MVP RSM Polytechnic**

### **Felicitations of Toppers of MSBTE Summer 2020 Exam (4<sup>th</sup> Nov 2020)**



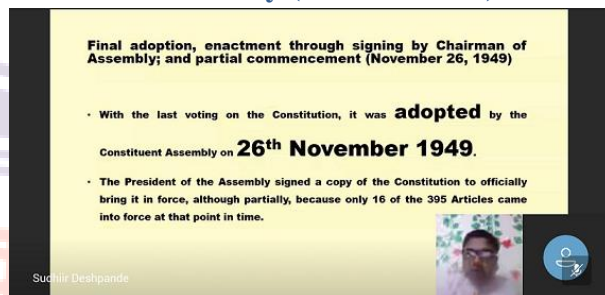
MVPS's Rajarshi Shahu Maharaj Polytechnic has felicitated the Toppers of MSBTE Summer 2020 Exam. Vedant Aher secured the 1<sup>st</sup> rank with 99.78%. Radhika Prayage secured 2<sup>nd</sup> rank with 99.44%. and Yuvraj Deshmukh secured 3<sup>rd</sup> rank with 99.41%.

### **Attended Webinar on Emotional Intelligence (7<sup>th</sup> Nov 2020)**



Webinar was organized on Emotional Intelligence for Third Year Students and Faculty members by CSI Chapter Nashik. It was delivered by Mr. S. R. Karode (CSI Fellow, Nashik Chapter).

### **Organized Guest Lecture on Constitution Day (26<sup>th</sup> Nov 2020)**



Guest Lecture was organized on Constitution Day for all staff Members of MVPS's Rajarshi Shahu Maharaj Polytechnic Nashik. It was delivered by Adv. Sudhir Deshpande, District Judge-Vasai. The event was coordinated by Prof. P. V. Patil.

**NEWSLETTER: NOV 2020**

Mechanical Engineering Department			Computer Technology Department		
Sr #	Activities	Date(s)	Sr #	Activities	Date(s)
1.	MVP RSM e-Yantra TBT	7 <sup>th</sup> Nov 2020	1.	Webinar on Emotional Intelligence	7 <sup>th</sup> Nov 2020
2.	Expert Lecture on Tonner Refilling	7 <sup>th</sup> Nov 2020	2.	Online Guest Lecture on Hacking	7 <sup>th</sup> Nov 2020
3.	Skill Development Program on CNC Machine	7 <sup>th</sup> Nov 2020	3.	Online Industrial Visit at Calibers Infotech	10 <sup>th</sup> Nov 2020
4.	Expert lecture on Time Management	10 <sup>th</sup> Nov 2020	4.	Skill Development Program on WordPress	27 <sup>th</sup> Nov 2020
5.	Online Industrial Visit at Zeco Aircon Ltd	27 <sup>th</sup> Nov 2020			
Electronics & Telecomm Department			Information Technology Department		
1.	Online Industrial Visit at Kay-Jay Enterprises, Nashik	2 <sup>nd</sup> Nov 2020	1.	Workshop on Online Quiz Tools & Toner Refilling	2 <sup>nd</sup> Nov 2020
2	Webinar on SFURTI Project	5 <sup>th</sup> Nov 2020	2.	Three Day Online Workshop on Python	4 <sup>th</sup> - 6 <sup>th</sup> Nov 2020
3	Online Guest Lecture on PCB Designing	11 <sup>th</sup> Nov 2020	3.	Expert lecture on Internet of Things	6 <sup>th</sup> Nov 2020
4.	SDP Troubleshooting of SMPS	27 <sup>th</sup> Nov 2020	4.	Online Guest Lecture on OOP	9 <sup>th</sup> Nov 2020
			5.	Three day Online Workshop on Entrepreneurship Dev.	9 <sup>th</sup> to 11 <sup>th</sup> Nov 2020
Electrical Engineering Department			Science and Humanity Department		
1.	Online Guest Lecture on Importance of Electrical Safety	3 <sup>rd</sup> Nov 2020	1.	Online Induction Program for student Part I and Part II	8 <sup>th</sup> to 13 <sup>th</sup> Nov 16 <sup>th</sup> to 20 <sup>th</sup> Nov 20
2.	Online Visit to Dahanu Thermal Plant	26 <sup>th</sup> Nov 2020	2.	Glimpses of Online Student Induction Program 2020-2021	24 <sup>th</sup> Nov 2020
3.	Skill Development Program on Electrical Maintenance	27 <sup>th</sup> Nov 2020	3.	Online Lecture on Facilities available under MOU between Microsoft and AICTE	26 <sup>th</sup> Nov 2020



## Mechanical Engg. Department

- Conducted MVP RSM e-Yantra TBT (7<sup>th</sup> Nov 2020)



Task Based Session was organized by MVP RSM e-Yantra Robotics for the Second Year Mechanical Engineering students. It was conducted by Mr. N. A. Gade (Co-ordinator) and Mr. M. S. Aware.

- Conducted Expert Lecture on Tonner Refilling (7<sup>th</sup> Nov 2020)



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### Tonner Refilling in Printers



**Ms. S. S. Rajole**  
Speaker  
Information Technology Department

**Objectives**

- ✓ To pass the knowledge of recent trends in refilling of toners for Printers.
- ✓ To create the awareness of Toner refilling technology.
- ✓ To enhance knowledge of participants in field of Printers.



**Mr. C. P. Gaikwad**  
Co-ordinator  
Mechanical Engineering Department

**WEBINAR DETAILS**  
Saturday  
7<sup>th</sup> NOV 2020

**Prof. B. S. Deshmukh**  
HOD

**For All Staff and Students of ME Department**

**Time:**  
11:00 AM ONWARDS

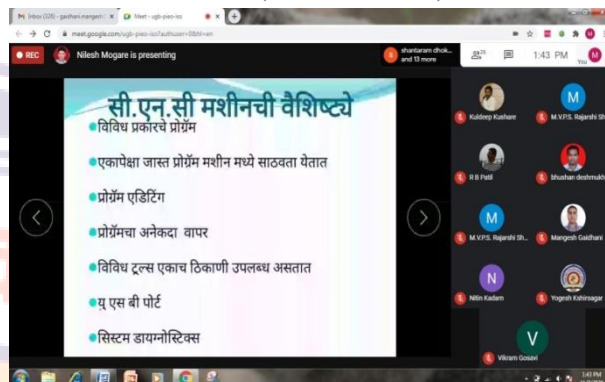
**!!! STAY HOME, STAY SAFE !!!**

**ZOOM**  
ID: 212-742-1511  
Password: R\*\*\*\*\*g

**Dr. D. B. Uphade**  
PRINCIPAL

Online Guest Lecture on Tonner Refilling in Printers was organized by Mechanical Engg. Dept. for Second Year and Third Year students. It was delivered by Ms. S. S. Rajole. The event was coordinated by Prof. C. P. Gaikwad.

- Conducted Skill Development Program on CNC Machine (7<sup>th</sup> Nov 2020)



Online Skill Development Program on CNC Machine was organized by Mechanical Engg. Dept. for ITI students. It was conducted by Prof. Y. M. Halde, Prof. Y. R. Kodhilkar, Mr. N. A. Pawar. Prof. N. S. Mogare had coordinated the event.

- Conducted Guest Lecture on Time Management (10<sup>th</sup> Nov 2020)



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Tel: 0253 2311018 www.rsmpoly.mvp.edu.in ndmvprsmpoly@gmail.com

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**Organizing**  
**Webinar on "Time Management"**



Maratha Vidya Prasarak Samaj's  
**Rajarshi Shahu Maharaj Polytechnic**  
Udoji Maratha Boarding Campus,  
Near KBTCOE, Gangapur Road, Nashik-13  
Tel: 0253 231 1018 @ 9881 981 004

**Tuesday 10<sup>th</sup> Nov 2020**  
03:00 pm To 4:00 pm

**Prof. K. V. Kushare**  
CO-ORDINATOR

**CORDIALLY WELCOME**  
**OUR HONOURABLE SPEAKER**



**Mr. Mihir Sanghavi**  
Managing Partner,  
Auro Group of Companies

**Prof. B. S. Deshmukh**  
HOD

**Dr. D. B. Uphade**  
PRINCIPAL

Online Guest Lecture on Basic and Advanced Concepts of Time Management was organized for SY, TY students and staff. It was delivered by Mr. Mihir Sanghavi, Regional Director, Mumbai Region & Managing Director, Auro Groups and member of ISHRAE Students Chapter. It was coordinated by Prof. K. V. Kushare.

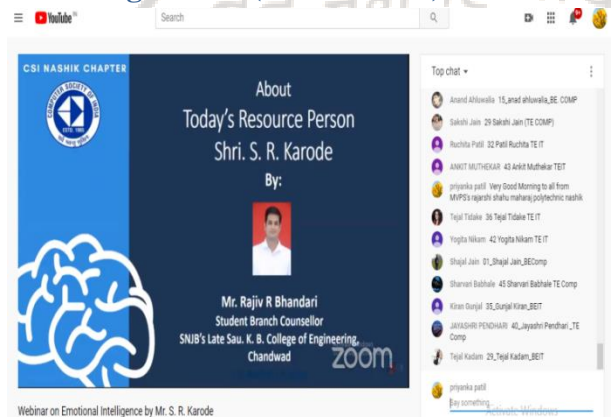
- **Attended Online Industrial Visit at Zeco Aircon Ltd (27<sup>th</sup> Nov 2020)**



Online Industrial Visit was organized on Engineering Company manufacturing equipment in the field of Heating, Ventilation and Air-conditioning (Air Management Systems) for Second Year and Third Year Students. It was organized by ISHRAE Student Chapter. It was coordinated by Prof. K. V. Kushare, Mechanical Engg. Dept.

### Computer Engg. Department

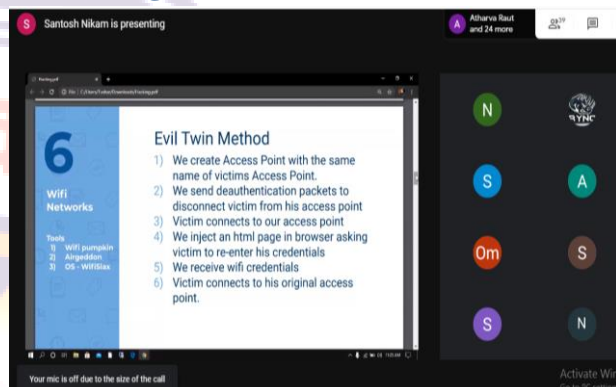
- **Attended Webinar on Emotional Intelligence (7<sup>th</sup> Nov 2020)**



Online Webinar on Emotional Intelligence was organized for Faculty members and Student by CSI Chapter Nashik. It was delivered by Mr. S. R. Karode (CSI Fellow,

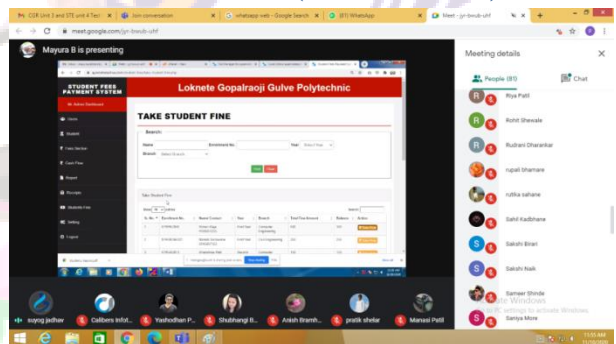
CSI Nashik Chapter). It was Coordinated by Prof. P. N. Patil.

- **Conducted Online Guest Lecture on Hacking (7<sup>th</sup> Nov 2020)**



Online Guest Lecture on Hacking was organized for Second Year Students. It was delivered by Mr. Tushar Chaudhari, Director, Ayam Interactive. It was coordinated by Prof. P. N. Patil.

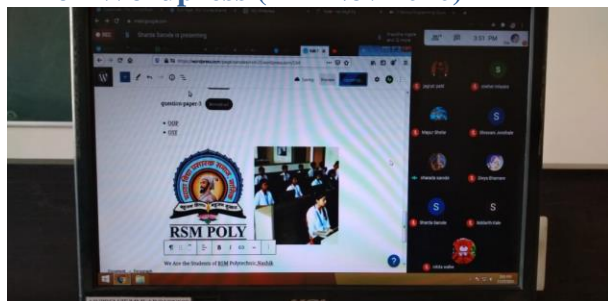
- **Conducted Online Industrial Visit at Calibers Infotech (10<sup>th</sup> Nov 2020)**



Online Industrial Visit was organized on Computer Technology Project work flow for Second Year and Third Year Students. It was delivered by Mr. Santosh Nikam Director, Calibers Infotech, Nashik. It was coordinated by Prof. P. N. Patil.



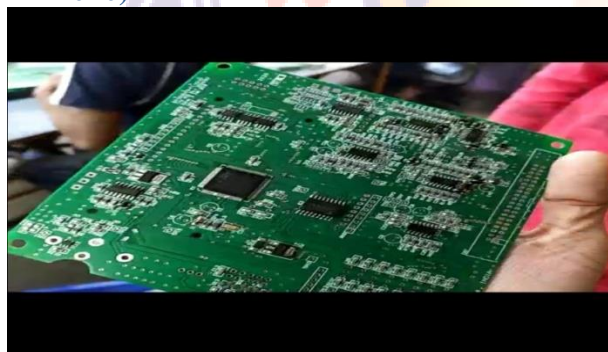
- Conducted Skill Development Program on Wordpress (27<sup>th</sup> Nov 2020)



Online Skill Development Program on wordpress was organized by Computer Department for Second Year and Third Year Students. It was delivered by Prof. S. V. Sarode, LCM, MVPS's RSM Polytechnic, Nashik.

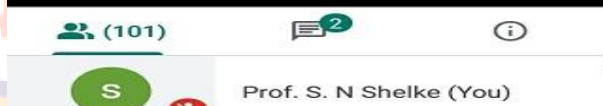
### E & TC Engineering Department

- Conducted Online Industrial Visit at Kay-Jay Enterprises, Nashik (2<sup>nd</sup> Nov 2020)



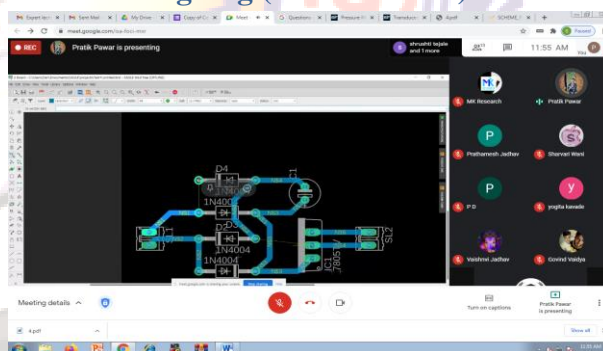
Online industrial visit to Kay-Jay Enterprises was organized for Third Year Students. It was coordinated by Prof. S. A. Suryawanshi.

- Attended Webinar on SFURTI Project (5<sup>th</sup> Nov 2020)



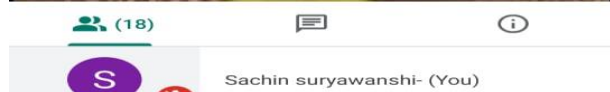
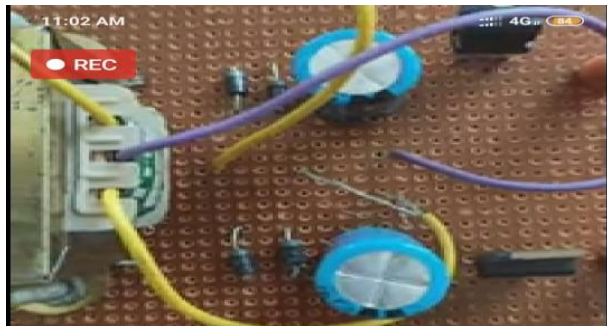
Online Webinar on SFRUTI Scheme was attended by Prof. S. N. Shelke, HOD, EJ Department. Prof. M. P. Poonia and Prof. Sharad Marathe, AICTE conducted the program.

- Conducted Online Guest Lecture on PCB Designing (11<sup>th</sup> Nov 2020)



Online Guest Lecture was organized on PCB Designing for Second Year & Third Year Students It was delivered by Mr. Mohit Kirve, CEO, MK Research, Nashik. It was coordinated by Prof. P.G. Deshmukh.

- Conducted Skill Development Program on Troubleshooting of SMPS & DC Regulated Power Supply (27<sup>th</sup> Nov 2020)



Skill Development Program was organized on Troubleshooting of SMPS and DC Regulated Power Supply for Second year & Third year students. It was delivered by Prof. P. G. Deshmukh, Mrs. N. D. Athare, Mrs. C. K. Bhor. The event was coordinated by Prof. P.G. Deshmukh.

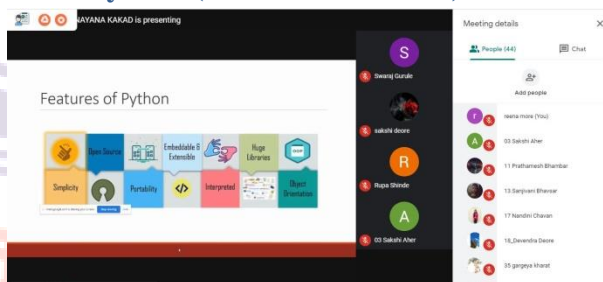
### Information Technology Department

- Conducted Workshop on Online Quiz Tools & Toner Refilling (2<sup>nd</sup> Nov 2020)



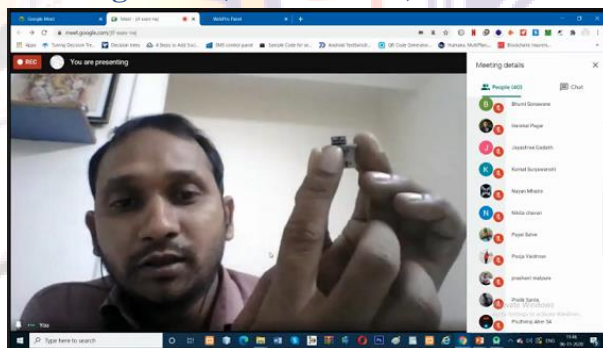
Online workshop on Online Quiz Tools & Toner Refilling was organized by IF Department for faculties and staff. It was delivered by Prof. S. S. Rajole and Prof. R. S. More. It was coordinated by Prof. S. S. Rajole.

- Conducted Three Day Online Workshop on Python (4<sup>th</sup> to 6<sup>th</sup> Nov 2020)



Online Three Day Workshop on Python was organized for Third Year Students. It was delivered by Prof. Nayana Kakad, Assi. Prof., KBT COE, Nashik. It was coordinated by Prof. R. S. More.

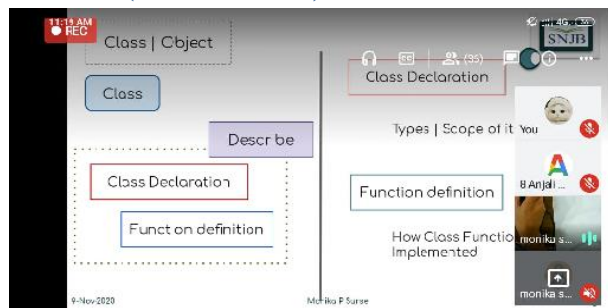
- Conducted Expert lecture on Internet of Things-IOT (6<sup>th</sup> Nov 2020)



Online Expert lecture on Internet of Things-IOT was organized for Second Year Students. It was delivered by Mr. Siddharth Mandwade, Director, Sunanda Infotech, Nashik. It was coordinated by Prof. S. S. Tile.



- Conducted Online Guest Lecture on OOP (9<sup>th</sup> Nov 2020)



Online Guest Lecture on Basic Concepts of OOP was organized for Second Year Studnets. It was delivered by Ms. Monika Surse, Technical Assistant SNJB's Late Sau. K. B. Jain COE, Chandwad. It was coordinated by Prof. S. S. Rajole

- Conducted Online Three Days Workshop on Entrepreneurship Development (9<sup>th</sup> Nov 2020 to 11<sup>th</sup> Nov 2020)



Online Three Days Workshop on Entrepreneurship Development was organized for Third Year Students. It was delivered by Dr. Sachin Pachorkar Asso. Professor and Prof. Swapnil Bachhav, Assi. Professor, MVPS's KBT COE, Nashik. It was coordinated by Prof. R. S. More.

## Electrical Engineering Department

- Conducted Online Guest Lecture on Importance of Electrical Safety (3<sup>rd</sup> Nov 2020)



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Udoji Maratha Boarding Campus, Near KBTCE, Gangapur Road, Nashik-13

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**"INTRODUCTORY SESSION ON NEED OF ELECTRICAL SAFETY"**

**Organised by**

Department of Electrical Engineering

For All Staff and Students of EE Department

**Day: Tuesday**  
**Date : 03<sup>rd</sup> Nov 2020**  
Mrs. P.R. Gangurde  
HOD, EE

**Time : 1:00 pm onwards**

STAY HOME, STAY SAFE

**Objectives:-**

- Promote a vibrant electrical safety culture.
- Identify the hazards associated with electricity: shock and fire
- Explain how electricity works regarding hazards on the job
- Prevent electrical related injuries.
- Describe basic safety controls and practices at work
- Identify and explain how to respond to electrical emergencies



**Mr. S. S. Aher**  
Speaker  
Electrical Engineering Department

**Zoom**  
**ID: 369 458 0116**  
**Password : ee@1002**  
Dr. D.B. Uphade  
PRINCIPAL

Online Guest Lecture on Importance of Electrical Safety was organized for All Students and faculties. It was delivered by Prof. S. S. Aher. It was coordinated by Prof. S. S. Aher.

- Conducted Virtual Visit to Dahanu Thermal Power Plant (26<sup>th</sup> Nov 2020)



Online virtual visit to Dahanu Thermal Power Plant was arranged for second year students. Mr. Bhanje A. R. (Chief Engineer of DTPS Dahanu) gives the information of power plant. It is Organized by Prof. A. S. Parkhe.

- Conducted Skill Development Program on Electrical Maintenance (27<sup>th</sup> Nov 2020)



Skill Development Program was organized on Maintenance and Repairing of Ceiling Fans for Second year & Third year students. Prof. A. S. Parkhe and Prof. S. S. Aher delivered it.

### Science and Humanity Department

- Attended Online Induction Program Part I and Part II (8th to 13 Nov & 16 to 20 Nov 20)



Online Induction Program was attended by faculties of Science and Humanity Department. It was organized by AICTE.

- Attended Online Student Induction Program 2020-2021 (24th Nov 2020)



Online Guest Lecture on Online Student Induction Program 2020-2021 was attended by Faculties of Science and Humanity Department. It was organized and delivered by Prof. V. R. Patil.

- Attended Online Lecture on Facilities available under MOU between Microsoft and AICTE (26th Nov 2020)



Online Lecture on Facilities available under MOU between Microsoft and AICTE was attended by Prof. S. P. Jagtap of Science and Humanity Department. It was organized by AICTE.



## Trending Technology:



Experimental Investigation and Optimization of Machining Parameters in Turning Process for Green Manufacturing

Green Manufacturing is a latest technique in production and manufacturing industry. It is implemented for the 21<sup>st</sup> centuries manufacturing industry. Its aim is to deduct the impact on environment & utilization of appropriate resource for life time application of product. In manufacturing industry, machining shows vital role in which the cutting fluid basic reason for creation of pollutants for environment. In industrial practices the selection of cutting fluid is an implemented technique to reduce the production cost. This helps to reduce the pollution which is generated by cutting fluid. Now a day's green manufacturing is effective way to minimize the palliative impact in product manufacturing processes. The main factor causing impact of cutting fluid is environmental impact. This concept aims to study the effect of different fluids on machining process like turning process. The studies about cutting fluid application in turning processes have been examined. This seminar aims to find new approaches for reducing the cutting fluid consumption in order to eliminate environmental impact. In the end the positive outcomes such as longer tool life, flow rate of chips & better surface finish in the machining processes.

### INTRODUCTION

#### a) Scenario of Manufacturing Process:

Environmental Pollution is directly affected by the manufacturing industry. Therefore to reduce this effects is major concern for all manufacturers. In the area of manufacturing, machining plays an important role. The machining processes have an important place in the traditional production industry. But during the machining process, the cutting fluid is the main sources of environmental pollution. Many industrial practices show that an optimal selection for cutting fluid is an effective way to reduce the production cost. The fluids basically have three characteristics. These are:

- Cooling Effect
- Lubrication Effect
- Carrying away the chips

The optimization in fluid selection is way to reduce the production cost to minimize the environmental pollution which is generated by cutting fluid. By optimizing cutting oil consumption organizations can reduce production cost, waste disposal costs, increase productivity of cutting oil and to improve workplace safety and health. Although these fluids can be reused and services cost almost double the

Temperature and low speed cutting operations. The concentrate cutting fluids must be stable without separating for a minimum of six months storage and emulsion stability is the most critical property of soluble oils. The Inclusion of H<sub>2</sub>O in emulsions induces rust, bacterial growth and evaporation losses. Sulphur, chlorine and phosphorous based chemical additives known as additives are used under extreme pressure conditions.

Cutting fluids are applied to the cutting region in order to improve the cutting performance. The Fluid reduces temperature generated at cutting tool/work piece interface. The hardness and resistance to abrasion of cutting tools are reduced at high temperature. Temperatures generated during machining affect the tool wear. So the reduction of this temperature will cause extending tool life. Cutting fluids also cool the work piece, thus preventing its final dimensions. Cutting fluids cooling of work piece function is very important especially in grinding operations. Cutting fluids should have good lubrication property.

- Good lubricating properties
- High cooling capacity
- Less Viscous to provide free flow of liquid
- Chemically stable
- Less Inflammable

#### b) Green Manufacturing

By green manufacturing companies can reduce their environmental impact by making green products, using green processes to make things or both. Green manufacturers try to make products less harmful to environment.

- Carpets made from recycled plastic bottles.
- Car that use electric power instead of gasoline.
- Light bulbs that consume less electricity.

## CONCLUSIONS

- The Taguchi analysis response has been proposed as a way implementation for selection of turning process parameters for MS rod of 40mm.  
The optimal machining parameters have been determined by the grey relational grade for multi performance characteristics that is Cutting Force, Surface Roughness and Temp.
- 27 tests which are based on OA's have been performed.
- The work checks and evaluates the flexibility of Finish Operation produced during the turning.
- From the low value of grey relational grade for Cutting Speed, Feeds and DoC are 8 mm/min, 10 mm/rev, 400 mm, respectively. These are the recommended levels of controllable process factors when better Surface Finish are obtained.
- The ANOVA of GRG for multi-performance characteristics reveals that the cutting speed is the most significant parameter.
- Optimum process parameter will optimized by GRA. It is shown that the performance characteristics of the Turning process such as FC, Ra and T are improved together by using the method proposed by this study.
- The effectiveness methodology is successfully established by validation experiment.

**Prof. Y. R. Kodhilkar**  
LME

## Building Atmanirbhar Bharat and Overcoming Covid-19



In May 2020, Indian Prime Minister Narendra Modi announced 20 lakh crore rupees economic stimulus package named 'Atmanirbhar Bharat Abhiyan', with the slogan 'Vocal for Local'. It was announced with the aim to make India self-reliant and also to provide a stimulus for the economy that was hit badly by COVID-19. This package is estimated to be 10% of GDP. While announcing this package, Prime Minister said that this package focuses on land, labour, liquidity & laws. He also mentioned that this will benefit labourers, farmers, honest taxpayers, MSMEs & cottage industry

## INITIATIVES

As part of the Atmanirbhar Bharat package, numerous government decisions have taken place such as changing the definition of MSMEs, boosting scope for private participation in numerous sectors increasing FDI in the defense sector; and the vision has found support in many sectors such as the solar manufacturers sector.

Examples of initiatives towards self-reliance:

The growth of India's personal protective equipment (PPE) sector from zero before March, to 1, 50,000 pieces a day by the beginning of May, is considered as a fine example of a self-reliant India. The PPE industry in India has become the largest fund in the country worth. Setup by the IIT Alumni Council with the aim of supporting the mission towards self-reliance.

India's own 'Made in India' 5G network was announced in July 2020 by Reliance Jio. Mukesh Ambani announced in mid-July "Jio has created a complete 5G solution from scratch that will enable us to launch a world-class 5G service in India, using 100 per cent homegrown technologies and solutions".

In September 2020. In August 2020, the Defense Minister Rajnath Singh announced that the Defence Ministry is "now ready for a big push to Atmanirbhar Bharat initiative" by imposing an "import embargo on 101 items" in a staged manner over a period of 5 years.

## CONCLUSION

Due to COVID-19 pandemic, trade of goods and migration of people got disrupted and as a result, many countries started preparing for the future pandemics by diversifying supply chains and making themselves self-sufficient. So, Atmanirbhar Bharat Abhiyan is very much needed for India to transform itself into a self-reliant country. But, this may not be sufficient to revive the economy and to rebuild livelihoods that are affected by the pandemic.

**-Rushikesh Kadlag,**  
Student, SYME

## Importance of Artificial Intelligence and Machine Learning in Today's life.



Machine learning is an application of Artificial Intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being physically



programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

### **HOW MACHINE LEARNING WORKS**

In a way, Machine Learning works in a similar way to human learning. For example, if a child is shown images with specific objects on them, they can learn to identify the differentiate between them. Machine learning works in this similar manner: Through data inputs and certain commands, the computer is enabled to “learn” to identify certain objects (persons, objects, etc.) and to distinguish between them. For this purpose, the software is supplied with data and trained. For instance, the programmer can tell the system that a particular object is a human being (=“human”) and another object is not a human being (=“no human”). The software receives continuous feedback from the programmer. These feedback signals are used by the algorithm to adapt and optimize the model. With each new data set fed into the system, the model is further optimized so that it can clearly distinguish between “humans” and “no humans” at the end.

### **TYPES OF MACHINE LEARNING**

**Supervised Learning** - In the course of monitored learning, example models are defined in advance. In order to ensure an adequate allocation of the information to the respective model groups of the algorithms, these then have to be specified.

**Unsupervised Learning** - In unsupervised learning, artificial intelligence learns without predefined target values and without rewards. It is mainly used for learning segmentation (clustering).

**Partially supervised learning** - Partially supervised learning is a combination of supervised and unsupervised learning.

**Encouraging learning** - Reinforcing learning just like Skinner's classic conditioning - is based on rewards and punishments. The algorithm is taught by a positive or negative interaction which reaction to a certain situation should take place.

**Active learning** - Within the framework of active learning, an algorithm is given the opportunity to query results for specific input data on the basis of pre-defined questions that are considered significant. Usually, the algorithm itself selects questions with high relevance.

### **ADVANTAGES OF MACHINE LEARNING**

Machine Learning undoubtedly helps people to work more creatively and efficiently. Basically, you too can

delegate quite complex or monotonous work to the computer through Machine Learning - starting with scanning, saving and filing paper documents such as invoices up to organizing and editing images.

### **MOST POPULAR APPLICATIONS OF MACHINE LEARNING**

Machine Learning is applied at Netflix and Amazon as well as for Facebook's face recognition. For you as a user, Machine Learning is for example reflected in the possibility of tagging people on uploaded images. In fact, Facebook has the largest face database in the world. The data fed by users into the social network is used by Facebook to optimize and train Machine Learning systems in terms of visual recognition.

### **TECHNOLOGY LEADERS USING MACHINE LEARNING**

In addition to Microsoft, Google, Facebook, IBM and Amazon, Apple also spends enormous financial resources on the use and further development of Machine Learning. IBM's Watson supercomputer is still the best-known appliance for Machine Learning. Watson is mainly used in the medical and financial sectors. As already mentioned, Facebook uses Machine Learning for image recognition, Microsoft for the speech recognition system Cortana, Apple for Siri. Of course, Machine Learning is also used at Google, both in the area of image services.

### **CONCLUSION**

So basically, Machine Learning is a technique of training machines to perform the activities a human brain can do, a bit faster than an average human being. Machines can be trained to perform human activities in several areas and can aid humans in living better lives. Machine Learning can be supervised or Unsupervised as mentioned above. If you have lesser amount of data and clearly labeled data for training, opt for Supervised Learning. Unsupervised Learning would generally give better performance and results for large data sets. If you have a huge data set easily available go for deep learning techniques which is a part of Artificial Intelligence.

**Ms. Purva Sonar**  
**Student, SYCM**

### **Role of Technology in Saving Lives in COVID 19 Pandemic**



As the COVID-19 pandemic relentlessly spreads globally it has been pushing healthcare systems to their limits and compelling governments and healthcare institutions to rethink their service delivery strategies. Member

States, United Nations agencies, non-government organizations, and foundations are incorporating the use of technology to address this grave public health crisis. Digital technology serves as one part of the overall solution, however, there are some controversial challenges to using technology during the COVID-19 pandemic

#### **DETECTING THE VIRUS**

As part of efforts to slow the spread, it should hardly be surprising that determining who is sick has been a top priority for many organizations. Everything from temperature scanners to tools that detect the presence of an airborne virus may even be necessary after society starts to open up.

As Science Daily reports, researchers in Zurich are currently adapting a system designed to measure airborne pollutants to detect the presence of Covid-19 in the air. The system will use optical and heat sensors to detect and measure the virus, and researchers hope it can be used in the future to identify and stop future epidemics.

Survey data is also being used to track the spread of the virus. Facebook has recently begun collecting survey data regarding users' Covid-19 symptoms to help identify exposure risk for different communities.

As Wired reports, Carnegie Mellon is using these survey results, along with data from Google surveys and search trends, doctor visits, and flu testing, to generate maps that highlight the spread across the country.

#### **PROVIDING SAFE AND EFFECTIVE TRIAGING TO PATIENTS**

Hospitals are understandably concerned about diverting resources away from patients who are not in urgent need at this time. While some hospitals are reaching capacity with Covid-19 patients, other areas have allowed elective treatments to resume.

Even with these reduced restrictions, however, there is also the concern of Covid-19's potentially spreading through hospital interactions. Many individuals in high-risk groups do not want to visit a hospital where they could catch a life-threatening disease.

Such concerns are illustrated in a report from conversational A.I. firm Hyro. An analysis of 2,000 patient conversations on Covid-19 virtual assistants

found that while 56 percent of patients were interested in testing, 40 percent of these conversations revealed confusion over hospital policy changes resulting from the pandemic. When 72 percent of patients view their general practitioner as their go-to source for health information, it is easy to see how medical professionals could easily get overwhelmed by demand without the help of tools that facilitate frequently asked questions. The demand for services and confusion surrounding Covid-19-related changes highlights the need for digital patient engagement. Remote triaging helps manage the health care system's capacity by allowing patients to avoid unnecessary visits and improves patients' flow. As NPR reports, such systems have actually improved treatment retention rates for individuals struggling with opioid abuse.

#### **MEETING BASIC NEEDS FOR VULNERABLE INDIVIDUALS**

Business-oriented technology may not be viewed as a lifesaver, but for individuals in high-risk groups who are quarantining at home, such tools make a meaningful difference. Food delivery apps like DoorDash and Postmates enable the delivery of groceries or restaurant meals. Many of these services are now implementing "contactless" delivery as an option as well.

#### **CONTACT TRACING APPLICATIONS**

Contact tracing apps like Aarogya Setu have assisted in tracking the COVID-19 spread. Technology has also helped in educating people about the entire situation and reminding them to take the necessary precautions. Telecom operators such as BSNL, Jio, Airtel, etc. have used caller tunes for spreading awareness about the pandemic.

The facial recognition technology has helped in identifying people accurately even when they are wearing a mask. Technology has also helped in monitoring the movement of quarantined people. CCTV cameras which are enabled with facial recognition feature have helped in identifying infected individuals who do not follow the rules and step out of their homes despite being quarantined.

#### **GETTING NEEDED FOOD IS ESSENTIAL DURING ANY CRISIS**

For the companies using these services, it also serves as an important tool for staying in business. Many businesses have had trouble obtaining PPP loans, so anything that allows for some sort of continued revenue is a financial lifesaver.

Remote work opportunities have also made it easier for vulnerable individuals to continue their employment at home. Virtual meetings and cloud storage aren't new to



the business world -- but the current pandemic illustrates just how important they can be.

Keeping work functioning as normally as possible can make a big difference for someone's mental health. This is especially important in light of an ABC News/Washington Post poll that found Americans are more stressed by the coronavirus than they were by the Great Recession. Being able to continue working relieves many financial and emotional worries, which can significantly help one's mental well-being. Technology supported temperature monitoring. The wireless thermometer guns and other similar infrared body temperature measuring devices have become the most important medical equipment that are being used at checkpoints of offices, airports, hotels, hospitals, train stations, shops, and other public places. These technologies assist in measuring the body temperature from a distance and turn out to be effective in pinpointing the individuals who might need further investigation. Automated thermal monitoring along with facial recognition is making the process faster and more effective.

#### **ROBOT NURSES AND AI DIAGNOSIS**

Robots are being used in hospitals in some countries to deliver food, medicine and other supplies to patients; to disinfect hospitals and other public areas; to check patients' temperatures; and to answer common questions. Coronavirus is even being diagnosed using AI, which can read thousands of CT scans in 20 seconds with an accuracy rate of 96%. In a global pandemic, technology tools have become key weapons for effectively monitoring and controlling disease outbreaks. Especially when containment is a challenge, technology can not only operate as near-stand-ins for healthcare professionals, but it can also match the scale and speed at which the current pandemic requires treatment.

#### **WORK FROM HOME (WFH)**

The work from home option has ensured business continuity for various companies and businesses. Internet, data privacy security, virtual meetings, cloud conferencing, etc. have assisted professionals in adapting themselves to work from the home scenario with ease. WFH has also ensured that the deliverables are not delayed. Remote working has been a blessing in disguise, which has helped us to a great extent to maintain and follow social distancing protocols.

#### **THE ROLE OF TECHNOLOGY IN THE FIGHT AGAINST COVID-19 WILL BE KEY**

The role of technology in the fight against COVID19 will be crucial and innovation will clearly be at the

forefront of this transformation. With digital technologies, companies can empower themselves to act rather than react to such situations in the future.

#### **CONCLUSION**

Today the greatest risk of worldwide catastrophe is pandemic, an enormously infectious virus that's more devastating and may kill many people. The transparency that we have gained through this current COVID-19 situation, we now understand that we were not geared up for this pandemic situation. The next pandemic is not a matter of "if it happens", but "when it happens", would we be prepared in advance against the pandemic at an individual and collective level. What we actually need is preparedness. Indeed, the technology has advanced more and will continue to advance exponentially, but the human institutions and societies need to accelerate in adapting to it and continue investing in building the technology systems for the preparedness. After the COVID-19 outbreak, it is evident that, from AI to robotics, the technology innovations are helping to manage the epidemic and better equip to fight future public health emergency in a timely, systematic, and calm manner.

**Prof. P. N. Patil**  
**LCM**

#### **Recent Futuristic Patents**



Patents are surely a way to protect intellectual property and underline a brand's focus on innovation. Patents can be used for licensing or a deterrent against litigation. But looking at patents also gives an insight into what a certain company could be working on.

#### **Tesla Autopilot**

IT is a suite of advanced driver-assistance system features offered by Tesla that has lane centering, traffic-aware cruise control, self-parking, automatic lane changes, semi-autonomous navigation on limited access freeways, and the ability to summon the car from a garage or parking spot. In all of these features, the driver is responsible and the car requires constant supervision. The company claims the features reduce accidents caused by driver negligence and fatigue from long-term driving.

As an upgrade to the base Autopilot capabilities, the company's stated intent is to offer full self-driving (FSD) at a future time, acknowledging that legal, regulatory, and technical hurdles must be overcome to achieve this goal. As of April 2020, most experts believe that Tesla vehicles lack the necessary hardware for full self-driving.<sup>1</sup> Autopilot was ranked

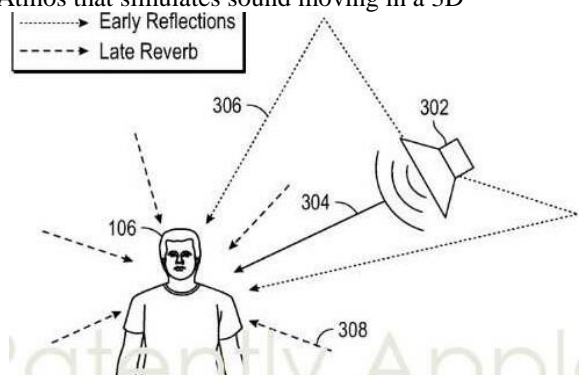
last by Navigant Research in 2020 for both strategy and execution in the autonomous driving sector.



**Fig1: Tesla Autopilot**

### Apple

Apple has been granted a patent for a system that could split audio signals into multiple paths, giving the impression that the audio is coming from different points and not directly from the loudspeaker. The patent, published by the United States Patent Office (USPO), suggests a virtual acoustics system could come to Apple's various devices in the near future. After the launch of the Home Pod, Apple has been focusing a lot on improving the audio experience on certain devices, especially the iPhone and MacBook Pro. For instance, the iPhone 11 Pro supports the spatial audio and Dolby Atmos that simulates sound moving in a 3D

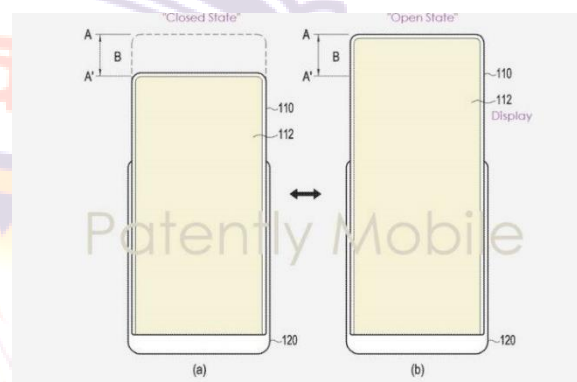


**Fig2: Reflection**

### Amazon

Amazon recently received a patent for a "touchless scanning system" that would identify people through their hand movements, rather than faces. This technology means customers would need to scan their hand in order to enter a store and again when they are about to purchase an item. The system essentially captures details of customers through the wrinkles and

veins in their palms. There is no guarantee if Amazon will introduce this technology in its stores, but there are reports that the company was testing a similar system at Whole Foods that lets people checkout by scanning their hands. The patent was filed in 2018, and published in December by the United States Patent Office (USPO).



**Fig 3: Samsung**

### Samsung

A phone with an expandable display. Well, Samsung might consider making one in the near future. The South Korean major recently filed a patent for a smartphone with a display that can be expanded, giving users more screen real estate. It's an interesting idea to increase the screen size without actually making a foldable phone. In the closed state, the smartphone will look like a regular phone and when open, its screen can be expanded further. The advantage of an expandable display is to deliver immersive viewing experience when watching a movie or playing games. The good thing about such a stretchable smartphone is to increase or decrease the screen, depending on user needs. There's still a question mark on its arrival, but we do know that Samsung is at least working on a stretchable phone.

**Mast. Parth Tiwari**  
**SYEJ**

### LiDAR- Light Detection and Ranging

Archaeologists are using LiDAR data to continue their researches amid global pandemic.



### What is LiDAR?

It is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distance) to the Earth.



These light pulses—combined with other data recorded by the airborne system— generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

### Who invented first?

The first **LiDAR** prototype was built in 1961 by Hughes Aircraft Company, which had built the first laser a year earlier. One of the earliest beneficiaries of **LiDAR** was the United States' space program; the **technology** was used to map the moon during the 1971 Apollo 15 mission

### Types of LiDAR:

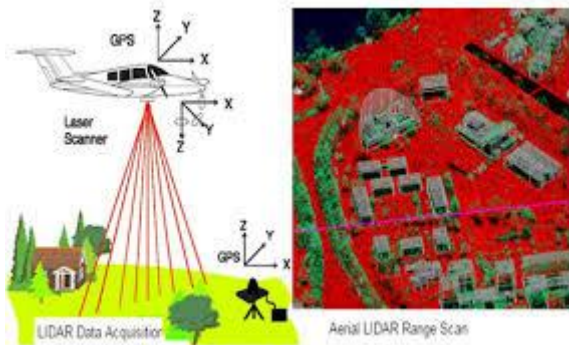
Two types of lidar are topographic and bathymetric. Topographic lidar typically uses a near-infrared laser to map the land, while bathymetric lidar uses water-penetrating green light to also measure seafloor and riverbed elevations

### How it works?

A lidar instrument principally consists of a laser, a scanner, and a specialized GPS receiver.

Airplanes and helicopters are the most commonly used platforms for acquiring lidar data over broad areas.

LiDAR follows a simple principle — throw laser light at an object on the earth surface and calculate the time it takes to return to the LiDAR source. Given the speed at which the light travels (approximately 186,000 miles per second), the process of measuring the exact distance through LiDAR appears to be incredibly fast.



**Fig. LiDAR**

### Challenges with LiDAR:

It can't perform well in fog, rain, snow and dusty weather. Struggles to detect a glass wall or door, which is why smartphone manufacturers and self-driving cars makers use LiDAR along with secondary cameras and sensors.

### Application of LiDAR:

Lidar is commonly used to make high-resolution maps, with applications in surveying, geodesy, geomatics, archaeology, geography, geology, geomorphology, seismology, forestry, atmospheric physics, laser guidance, airborne laser swath mapping (ALSM), and laser altimetry.

### Location based navigation services of various countries including India:-

The four global GNSS systems are – GPS (US), GLONASS (Russia), Galileo (EU), BeiDou (China). Additionally, there are two regional systems – QZSS (Japan) and IRNSS or NavIC (India).

**Prof. P. G. Deshmukh**  
**LEJ**

### Digital Twin



A digital twin is a digital representation of a physical object or system. The technology behind digital twins has expanded to include large items such as buildings, factories and even cities, and some have said people and processes

can have digital twins, expanding the concept even further.

### How does a digital twin work?

A digital twin begins its life being built by specialists, often experts in data science or applied mathematics. These developers research the physics that underlie the physical object or system being mimicked and use that data to develop a mathematical model that simulates the real-world original in digital space. The twin is constructed so that it can receive input from sensors gathering data from a real-world counterpart. This allows the twin to simulate the physical object in real time, in the process offering insights into performance and potential problems. The twin could also be designed based on a prototype of its physical counterpart, in which case the twin can provide feedback as the product is refined; a twin could even serve as a prototype itself before any physical version is built.

The process is outlined in some detail in this post from Eniram, a company that creates digital twins of the massive container ships that carry much of world commerce – an extremely complex kind of digital twin application. However, a digital twin can be as complicated or as simple as you like, and the amount of data you use to build and update it will determine how precisely you're simulating a physical object. For instance, this tutorial outlines how to build a simple digital twin of a car, taking just a few input variables to compute mileage.

### Digital-twin use cases

These two digital-twin examples – the car and the cargo vessel – give you a sense of potential use cases. Objects such as aircraft engines, trains, offshore platforms and turbines can be designed and tested digitally before being physically produced. These digital twins could also be used to help with maintenance operations. For example, technicians could use a digital twin to test that a proposed fix for a piece of equipment works before applying the fix the physical twin. Digital-twin business applications are found in a number of sectors:

- **Manufacturing** is the area where rollouts of digital twins are probably the furthest along, with factories already using digital twins to simulate their processes, as this case study from Deloitte
- **Automotive** digital twins are made possible because cars are already fitted with telemetry sensors, but refining the technology will become more important as more autonomous vehicles hit the road.
- **Healthcare** is the sector that produces the digital twins of people we mentioned above. Band-aid sized sensors send health information back to a digital twin used to monitor and predict a patient's well-being.

### Digital twins and IoT

Clearly, the explosion of IoT sensors are part of what makes digital twins possible. And as IoT devices are refined, digital-twin scenarios can include smaller and less complex objects, giving additional benefits to companies.

Digital twins can be used to predict different outcomes based on variable data. This is similar to the run-the-simulation scenario often seen in science-fiction films, where a possible scenario is proven within the digital environment. With additional software and data analytics, digital twins can often optimize an IoT deployment for maximum efficiency, as well as help designers figure out where things should go or how they operate before they are physically deployed.

Prof. A. P. Patil  
LIF

### Cloud Computing



Cloud computing is the on-demand availability of computer system resources. Cloud computing is the delivery of on-demand computing services from applications to storage and processing power, typically over the internet and on a pay-as-you-go basis.

Cloud computing as a term has been around since the early 2000s, but the concept of computing-as-a-service has been around for much, much longer as far back as the 1960s, when computer bureaus would allow companies to rent time on a mainframe, rather than have to buy one themselves. These 'time-sharing' services were largely overtaken by the rise of the PC which made owning a computer much more affordable, and then in turn by the rise of corporate data centers where companies would store vast amounts of data. But the concept of renting access to computing power has resurfaced again and again in the application service providers, utility computing, and grid computing of the late 1990s and early 2000s. This was followed by cloud computing, which really took hold with the emergence of software as a service and hyperscale cloud computing providers.

In a cloud computing system, there's a significant workload shift. Local computers no longer have to do all the heavy lifting when it comes to running applications. The network of computers that make up the cloud handles them instead. Hardware and software demands on the user's side decrease. The only thing the user's computer needs to be able to run is the cloud computing system's interface software, which can be as simple as a Web browser, and the cloud's network takes care of the rest.

Cloud computing underpins a vast number of services. That includes consumer services like Gmail or the cloud back-up of the photos on your smartphone, though to the services which allow large enterprises to host all their data and run all of their applications in the cloud. Netflix relies on cloud computing services to run its video streaming service and its other business systems too, and have a number of other organisations.

The exact benefits will vary according to the type of cloud service being used but, fundamentally, using cloud services means companies not having to buy or maintain their own computing infrastructure. Using cloud services means companies can move faster on projects and test out concepts

Cloud computing is still at a relatively early stage of adoption, despite its long history. Many companies are still considering which apps to move and when. However, usage is only likely to climb as organisations get more comfortable with the idea of their data being somewhere other than a server in the basement. We're still relatively early into cloud adoption some estimates. Moving to the cloud can help companies rethink business processes and accelerate business change, goes the argument, by helping to break down data and organisational silos. Some companies that need to boost momentum around their digital transformation



programmes may find this argument appealing; others may find enthusiasm for the cloud waning as the costs of making the switch add up.

Ms. Sakshi Deore  
SYIF

## WORLD AFTER COVID-19



**Recovery prospects:** The COVID-19 crisis has been severe at a human, healthcare and societal level, and the outlook is challenging in the short and medium term. It is already having deep economic repercussions for

individuals, business and nations. In addition, it has come at a moment when the economic and financial scenario was already in turmoil (inverted yield curves, disruptions in the repo market, pre-recession in several countries, etc.). Some countries seem to be weathering the storm better than others, but it remains to be seen whether this will bring them any power and productivity advantages, or whether a global recession will overshadow their performance. The current virus outbreak is likely to be the first of several waves; even if we manage to contain it now, it can resurface. Therefore, despite the extraordinary monetary and fiscal measures announced, we do not expect a V-shaped recovery, but a U-, W- or L-shaped recovery. We also expect a “new normal”, not a “going back to normal”.

**Important challenges ahead:** We face an economic paralysis, quite widespread in the second quarter of 2020 and probably spilling into the third quarter, with double-digit GDP decreases globally. Activities like travel, tourism, retail, restaurants, cinemas, etc. have already been hit very hard. Despite extraordinary measures, many small and medium size businesses (SMEs) may be wiped out, while unemployment is surging. We may see a number of private industries taken under public control. Such extraordinary measures will result in yet more debt (public and private) so, coupled with the ageing of some societies, we face a risk of Japanization<sup>1</sup>. Financial markets, including currencies, will continue to be volatile. The stock market crash may have huge impacts on pension schemes, further exacerbating the funding black hole that corporates and governments are expected to fill. In addition to the COVID-19 and financial crises, the ongoing oil price war impacts Oil & Gas companies amongst others. Some Business-to-consumer (B2C)

platforms like Airbnb and Uber have been hit hard due to the freezing of people's mobility, while others with a delivery or logistics focus have fared better and may boom. The crisis has shown that key aspects like digitalization (ultimately, agility and flexibility) or business continuity were not mature enough in many private companies. At a public level, once again we observe that many societies have failed at preparedness and early response.

**Is there a model for crises?** Besides COVID-19, there are high probabilities of disruptive events, which we call “event horizons”, some of them potentially positive but others potentially catastrophic – and all of them quite unpredictable. Also, huge disruptions may be triggered by very small changes – something that we have modelled as “cusps” (based on mathematical chaos and catastrophe theory). Cusps are surfaces that show how small changes in trajectory can result in either smooth outcomes or deep discontinuities. Applying this model to the current crisis, we believe that effective risk and crisis management efforts will enable the transformation of unpredictable event horizons into challenging but manageable cusps, which can be navigated with appropriate strategy and flexible execution.

## IMPLICATIONS FOR INDUSTRIES:

**Healthcare & Life Sciences:** These sectors are experiencing a boom. In Healthcare, the crisis is revealing two key facts: there was excessive cost-cutting post 2008 (with remaining resources and capacity proving to be quite insufficient during the crisis), and the sector has not extracted most of the benefits of digitalization – it is still riddled with inefficiency and insularity. Therefore, investments are likely to take place such as equipment for hospitals, telemedicine and remote care. In Science the importance of epidemiology, molecular research for finding vaccines, treatment personalization (predicting the effect of several medicines in persons with different co-existing diseases), etc., and may bring genomics to a similar status soon. Some of the traditional stringent conditions for drug development and testing are being and could continue to be relaxed in a controlled manner for specific diseases or episodes.

Mast. Sarthak S. Bhambar  
Student, TYEE

### Need for Electric Vehicles in India

#### Why in News..?



Recently Union Cabinet approved setting up of a '**National Mission on Transformative Mobility and Battery Storage**' to promote clean, connected, shared, sustainable and holistic mobility initiatives. An electric vehicle uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through self-contained battery, solar panels or an electric generator to convert fuel to electricity.

#### I. Need for EVs in India

##### A) Climate change

Problem of rapid global temperature increase has created the need for a reduction in the use of fossil fuels and the associated emissions. India has committed to cutting its GHG emissions intensity by 33% to 35% percent below 2005 levels by 2030.

##### B) Rapid urbanization

Economic development leads to rapid urbanization in emerging nations as rural populations move non-agricultural sectors in cities creating environmental problems. According to a recent study by WHO, India is home to 14 out of 20 most polluted cities in the world. EVs will help in tackling this problem by reducing local concentrations of pollutants in cities.

##### C) Energy security

India imports oil to cover over 80 percent of its transport fuel. EVs can reduce dependence on imported crude oil promoting India's energy security.

##### D) Innovation

It will encourage cutting edge technology in India through adoption, adaptation, and research and development. EVs manufacturing capacity will promote global scale and competitiveness.

##### E) Employment

Promotion of EVs will facilitate employment growth in a sun-rise sector.

##### F) Clean and Low carbon Energy

The shift towards renewable energy sources has led to cost reduction from better electricity generating technologies. This has introduced the possibility of clean, low- carbon and inexpensive grids.

##### G) Cutting edge Battery Technology

Advances in battery technology have led to higher energy densities, faster charging and reduced battery

degradation from charging. Combined with the development of motors with higher rating and reliability, these improvements in battery chemistry have reduced costs and improved the performance and efficiency of electric vehicles.

#### II Challenges for EV Industry in India

A) Lack of a stable policy for EV production: EV production is capital intensive sector requiring long term planning to break even and profit realization, uncertainty in government policies related to EV production discourages investment in the industry.

B) Technological challenges: India is technologically deficient in the production of electronics that form the backbone of EV industry, such as batteries, semiconductors, controllers, etc.

C) Lack of associated infrastructural support: The lack of clarity over AC versus DC charging stations, grid stability and range anxiety (fear that battery will soon run out of power) are other factors that hinder the growth of EV industry.

D) Lack of availability of materials for domestic production: Battery is single most important component of EVs. India does not have any known reserve of lithium and cobalt which are required for battery production. India is dependent on countries like Japan and China for the import of lithium-ion batteries.

E) Lack of skilled workers: EVs have higher servicing costs and higher levels of skills is needed for servicing. India lacks dedicated training courses for such skill development.

#### IV. Government Initiatives

Government has set a target of electric vehicles making up 30 % of new sales of cars and two-wheelers by 2030 from less than 1% today. To build a sustainable EV ecosystem initiatives like – National Electric Mobility Mission Plan

(NEMMP) and Faster Adoption and Manufacturing of (Hybrid &) Electric vehicles in India (FAME India) have been launched by India.

**NEMMP:** It was launched in 2013 with an aim to achieve national fuel security by promoting hybrid and electric vehicles in the country. There is an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards.

**FAME:** FAME India Scheme [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] was launched in 2015 with the



objective to support hybrid/electric vehicles market development and manufacturing ecosystem. The scheme has 4 focus areas i.e. Technology Development, Demand Creation, Pilot Projects and Charging Infrastructure.

Organization like Bureau of Indian Standards (BIS), Department of Heavy Industry, Automotive Research Association of India are devising design and manufacturing standards of EVs, Electric Vehicle Supply Equipment (EVSEs) & charging infrastructure to smoothen the advent of in-house production of EVs.

#### V. FAME II

The Phase-II of FAME seeks to give a push to EVs in public transport and seeks to encourage adoption of EVs by way of market creation and demand aggregation. It envisages the holistic growth of EV industry, including providing for charging infrastructure, research and development of EV technologies and push towards greater indigenization.

**Establishment of Charging stations** are also proposed on major highways connecting major city clusters on both sides of the road at an interval of about 25 km each. The scheme with total outlay of Rs 10,000 Crores over the period of three years will be implemented with effect from 1st April 2019. FAME 2 will offer incentives to manufacturers, who invest in developing electric vehicles and its components, including lithium-ion batteries and electric motors. The centre has asked states to frame their EV policy and provide additional fiscal and non-fiscal incentives to manufacturers and buyers.

#### VI. National Mission on Transformative Mobility and Battery Storage

To promote clean, connected, shared, sustainable and holistic mobility initiatives.

The Mission will drive mobility solutions that will bring in significant benefits to the industry, economy and country.

#### VII. Phased Manufacturing Program

Valid for 5 years till 2024 to support setting up of a few large-scale, export- competitive integrated batteries and cell-manufacturing Giga plants in India. Creation of a PMP valid for 5 years till 2024 to localize production across the entire Electric Vehicles value chain.

#### VIII. Way Forward

Education curriculum and skill development plans should be upgraded to match the requirements of the sectors. Stabilizing policy environment by working on tax incentives, non-fiscal incentives can address the uncertainty of demand helping the industry to achieve economies of scale. EVs are rapidly growing sunrise sector which can give push to 'Make in India'. Signing of Memorandum of Understanding (MoU) with countries rich in materials like Lithium, rare earth materials etc. to deal with lack of availability of these materials. Establishing the right coordination among three pillars of EV industry i.e. urban planning, transportation and power sectors will assist in systematic adoption of EVs. Affordable, accessible, inclusive and safe mobility solutions are primary strategic levers for rapid economic development and improving 'Ease of Living'.

**Prof. S. S. Aher**  
LEE

#### Role of Tech. in Saving Live in Covid 19 Pandemic



Technology will not be able to avoid the onset of a pandemic; nevertheless, it can assist in managing a crisis more effectively. We all know how badly COVID-19 has impacted our lives, both personal and professional. During this time of sheer uncertainty and constant fear, our willingness to adopt technology has been our lifeline. Let's take a look at how technology has impacted our lives in the current COVID-19 pandemic.

##### 1. Contact Tracing Applications

Contact tracing apps like Aarogya Setu have assisted in tracking the COVID-19 spread. Technology has also helped in educating people about the entire situation and reminding them to take the necessary precautions. Telecom operators such as BSNL, Jio, Airtel, etc. have used caller tunes for spreading awareness about the pandemic.

The facial recognition technology has helped in identifying people accurately even when they are wearing a mask. Technology has also helped in monitoring the movement of quarantined people. CCTV cameras which are enabled with facial recognition feature have helped in identifying infected individuals who do not follow the rules and step out of their homes despite being quarantined.

## 2. Fitness & Health Apps

New alternatives are being introduced by health and fitness apps to help people remain fit at the comfort of staying indoors due to the pandemic situation. Several fitness and health brands have started conducting live workout sessions on their apps and social media platforms. These initiatives have also seen decent traction.

## 3. Technology-Based Temperature Monitoring

Infrared and wireless thermometers have now become the most commonly used medical equipment at toll gates, entry and exit gates of offices, airports, shopping malls, hotels, railway stations, shops, hospitals, and other public places. These temperature monitoring technologies have assisted in measuring the body temperature of individuals from a distance; these temperature measuring devices have also been useful in identifying the individuals who might need further investigation.



Forehead Thermometer scanner

## 4. Robot nurses and AI Diagnosis:

Robots are being used in hospitals in some countries to deliver food, medicine and other supplies to patients; to disinfect hospitals and other public areas; to check patients' temperatures; and to answer common questions. Coronavirus is even being diagnosed using AI, which can read thousands of CT scans in 20 seconds with an accuracy rate of 96%. In a global pandemic, technology tools have become key weapons for effectively monitoring and controlling disease outbreaks. Especially when containment is a challenge, technology can not only operate as near-stand-ins for healthcare professionals, but it can also match the scale and speed at which the current pandemic requires treatment.



start-up builds robot for COVID-19

## 5. Work From Home (WFH)

The work from home option has ensured business continuity for various companies and businesses. Internet, data privacy security, virtual meetings, cloud conferencing, etc. have assisted professionals in adapting themselves to work from the home scenario with ease. WFH has also ensured that the deliverables are not delayed. Remote working has been a blessing in disguise, which has helped us to a great extent to maintain and follow social distancing protocols.

## 6. Contactless Online Deliveries

The online grocery market witnessed tremendous growth during the pandemic due to the soaring demand amongst consumers. Families, particularly with children and older people, preferred to place their grocery orders online. This, in turn, resulted in a significant increase of new users who are resorting to online apps for grocery deliveries. The provision given to choose a preferred time slot for delivery plus a reduced delivery fee for orders above a specified amount is attracting more and more customers towards online delivery business models.

## 7. Smartphone Tracking: High-Tech Contact Tracing

Using technology to track cellphone users has been used in countries like Singapore and South Korea for contact tracing. Bluetooth and wireless signals to trace users in proximity have been used in Singapore. On the other hand, South Korea's success in containing and managing the outbreak was due in part to tracking phone use, in addition to bank transactions and use of closed-circuit television footage.

It was interesting to note that Moscow launched a QR-based system to track the disease in the country. The U.S.-based tech giants such as Apple and Google launched a partnership in April 2020 to roll out a Test and Trace strategy.

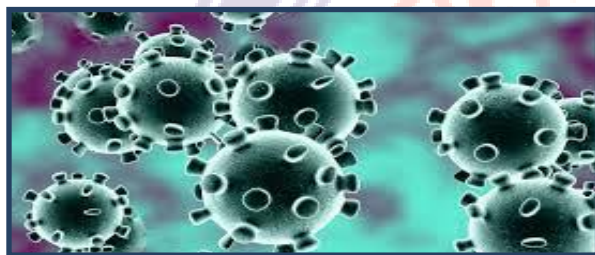
**- Prof. P.V.Patil  
LSH**



### Coronavirus the Unstoppable Disease



Coronavirus disease 2019 (COVID-19) is an acute infectious respiratory disease caused by a newly discovered coronavirus (SARS-CoV-2). Most people infected with the COVID-19 virus experience mild to moderate respiratory illness and recover without requiring special treatment, the disease presentation is more likely to be severe in older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, etc. Scientists first



identified a human coronavirus in 1965. It caused a common cold. Later that decade, researchers found a group of similar human and animal viruses and named them after their crown-like appearance.

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization. Most common symptoms are fever, dry cough etc. The serious symptoms are difficulty breathing or shortness of breath, chest pain or pressure, loss of speech or movement, Seek immediate medical attention if you have serious symptoms. Always call before visiting your doctor or health facility. On average it takes 5–6 days from when someone is infected with the virus for symptoms to show, however it can take up to 14 days.

**We can prevent it by doing some following Activities:**

- To prevent the spread of COVID-19:
- Clean your hands often. Use soap and water, or an alcohol-based hand rub.
- Maintain a safe distance from anyone who is coughing or sneezing.
- Wear a mask when physical distancing is not possible.
- Don't touch your eyes, nose or mouth.
- Cover your nose and mouth with your bent elbow or a tissue when you cough or sneeze.
- If you have a fever, cough and difficulty breathing, seek medical attention.

- Masks can help prevent the spread of the virus from the person wearing the mask to others. Masks alone do not protect against COVID-19, and should be combined with physical distancing and hand hygiene.

**-Rushikesh Sonawane,  
Student FYME**

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**Happy  
World Science Day, Children's Day,  
International Men's Day, World  
Television Day and Happy Diwali  
to  
All Readers on the behalf of  
Principal, Faculty, Supporting Staff  
and Students.**

**Dr. D. B. Uphade  
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