वार्षिक नियतकालिक

२०२४-२५

प्राचार्यांचे मनोगत

शासकीय तंत्रनिकेतन, कराडच्या वार्षिक नियतकालिकाचे प्रकाशन करताना मला मनस्वी आनंद होत आहे. याच वर्षी मी कराडला बदलीने प्राचार्य म्हणून रुजू झालो. शैक्षणिकदृष्ट्या शासकीय तंत्रनिकेतन, कराड ही नावाजलेली संस्था आहे. कराडसारख्या शिक्षणाच्या पंढरीमध्ये भारताचे माजी संरक्षण मंत्री तसेच महाराष्ट्र राज्याचे पहिले मुख्यमंत्री आदरणीय यशवंतरावजी चव्हाण यांच्या दूरदृष्टीतून १९५७ साली उभारलेली ही संस्था. ग्रामीण भागातील युवापिढीला तंत्रज्ञान शिकवणाऱ्या तंत्रनिकेतनाचा प्राचार्यपदाचा कार्यभार मला मिळाला याबद्दल अतिशय अभिमान वाटतो.

शासकीय तंत्रनिकेतन, कराडचे शैक्षणिक वातावरण विद्यार्थीकेंद्रित व सर्वांगीण व्यक्तिमत्व विकासासाठी पूरक असे आहे. नामवंत उद्योगांमध्ये विद्यार्थ्यांना नोकरीच्या संधी उपलब्ध होतात. अनेक मोठ्या उद्योगांमध्ये, सरकारी आणि खाजगी क्षेत्रामध्ये येथील अभियंते आपल्या कर्तृत्वाची छाप पाडत आहेत.

येथील विद्यार्थी उपक्रमशील आहेत. या नियतकालिकाच्या माध्यमातून शासकीय तंत्रनिकेतन, कराडमध्ये राबविलेल्या विविध उपक्रमांची ओळख होईलच त्याचबरोबर सर्वांगीण विकासासाठी आवश्यक असणारे लेखन,कविता,चित्रकला, संपादन इ. कलागुण जोपासण्याचे माध्यम माझ्या तंत्रनिकेतनातील विद्यार्थ्यांना उपलब्ध होईल.

आपल्या सर्वांना भावी वाटचालीस हार्दिक शुभेच्छा !

VISION AND MISSION

VISION OF INSTITUTE

To become an institute of national repute and to produce technocrat entrepreneur in the multi-domain profession, to cater the industry and societal needs

MISSION OF INSTITUTE

- Imparting technical Education to enhance multi domain skills.
- Providing the platform to develop skills by the state of the art and tools and technology

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TO G.P.PUNE

INAUGURATION OF MKSA

INDUSTRIAL VISIT OF SY MK

CELEBERATION OF WOMEN'S DAY

CELEBERATION OF TEACHER'S
DAY

DEPARTMENT OF INSTUMENTATION ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

DR. V. M. MOHITKAR SIR, DIRECTOR OF DTE MAHARASHTRA, INAUGURATING COSA

ARTIFICIAL RESPIRATION AWARENESS CAMPAIGN

Students of the Computer Department from Government Polytechnic Karad participated in an insightful and practical workshop on Artificial Respiration and Emergency Response Techniques organized by the Nakshatra organization. Held on 13th September 2024, the workshop aimed to prepare attendees for emergency situations by equipping them with critical life-saving skills.

DEPARTMENT OF ELECTRONICS ENGINEERING

DEPARTMENT OF ELECTRICAL ENGINEERING
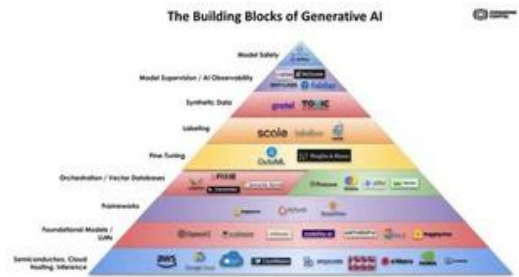
DEPARTMENT OF CIVIL ENGINEERING

Artificial Intelligence : The Key to Industry 4.0

आदित्य काव्रे
द्वितीय वर्ष मेकॅट्रोनिक्स

Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy. Applications and devices equipped with AI can see and identify objects. They can understand and respond to human language. They can learn from new information and experience.

The Building Blocks of Generative AI

...and ...ted headlines—are focused on breakthroughs in generative AI (gen AI), a technology that can create original text, images, video and other content. To fully understand generative AI, it's important to first understand the technologies on which generative AI tools are built: machine learning (ML) and deep learning.


They can make detailed recommendations to users and experts. They can act independently, replacing the need for human intelligence or intervention (a classic example being a self-driving car).
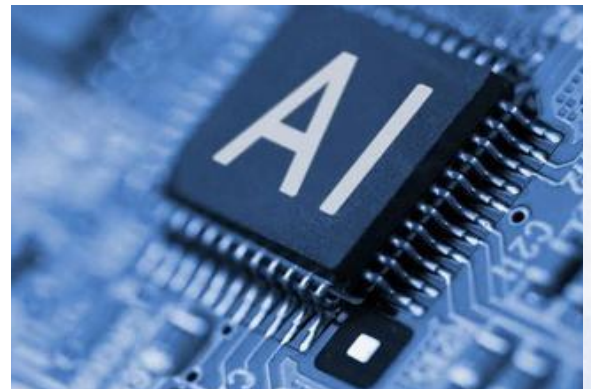
Man vs Machine

दिशा पाटील
द्वितीय वर्ष मेकॅट्रोनिक्स

- We all know that machines were created to make human life easier. Human beings and machines work differently. Machines perform different functions but do not have life like humans. Humans are flesh and blood, they have a life. Humans have emotions and feelings, they express different emotions at different times Humans understand the situation and respond accordingly, whereas machines do not have the capability of understanding. Humans are creative and imaginative. Machines are mechanical and they work with their mechanical brain which is programmed by humans. Human brain can work constantly and more efficiently to create and make use of something wisely. Humans are capable of learning, grasping, understanding the concept of various things. Humans are curious to discover and create new things. Humans are multi-talented where as machines are not. Artificial intelligence is also created by human brains and their functions are limited. Over the decades, man has come up with several unique and resourceful inventions. The computer and machines have begun to control and replace the important functions earlier performed by man. We have grown extremely dependent on artificial intelligence.
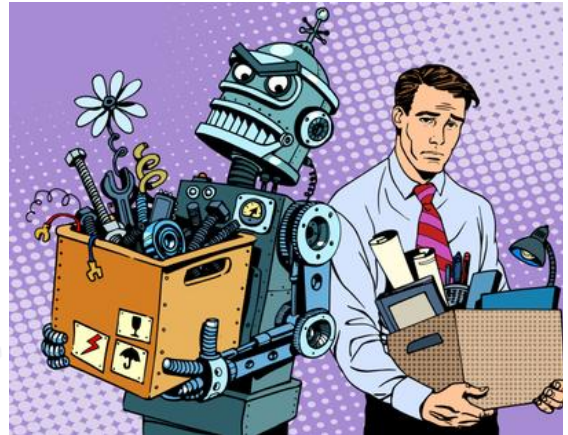
But artificial intelligence cannot replace human intelligence as man is the creator of machines are capable of learning, grasping, understanding the concept of various things. Humans are curious to discover and created new things. Humans are multi-talented where as machines are not.

मन...

वेदिका पवार

तृतीय वर्ष यंत्र

का कुणास ठाऊक, आज क्षणभर थांबावं
वाटतं
हरवलेलं मन पुन्हा शोधावस वाटतं.
मनाने मनाशी ठरवलं आता स्वतःसाठी
जगायचं आपल्याकडे वेळ असतो
सगळ्यांसाठी दयायला तर दूसरे मोकळे
असतात मला वेळ नाही म्हणायला
अशांत अविलं मन शांत करावसं वाटतं
मनावर असलेल ओझं हे हलकं करावं
वाटते
थांबवून धडपड सगळी आता स्तन्ध
व्हावसं वाटतं.
का कुणास ठाऊक ..
अपेक्षाशून्य होऊन चिंतामुक्त व्हावसं
वाटतं
घरात सगळ्यांनाच येतो कंटाळा, कारण
वयानुसार आपला रंग असतो निराळा.
नेहमी वाटत आपणच चुकतो पण
वैतागून कधीतरी माणूस पण थकतो
जीवन आहे म्हणल्यावर जगलं तर

पाहिजेच जन्मापासून मरेपर्यंत विचार
करण्यात जातात दिवस निघून, उद्या
काय होईल याची चिंता करत माणूस
जगत असतो भिऊन

DISCIPLINE FOR STUDENTS AND CHILDRENS

आकांक्षा बाच्छाव

द्वितीय वर्ष मेकॅट्रोनिक्स

Discipline is something that keeps each person in control. It motivates a person to progress in life and achieve3 success. Everyone follow discipline in his life in a different form. Besides, everyone has his own prospect of discipline. Some people consider it a part of their life and some don't. It is the guide that availability directs a person on the right path without discipline, the life of a person will become dull and inactive. Also a disciplined person can control and handle the situation of living in a sophisticated way than those who do not moreover, if you have a plan and you want to implement it in your life then you need discipline. It makes things easy for you to handle and ultimately bring success to your life.

It makes things easy for you to handle and ultimately bring success to your life. If talk about the types of discipline, then they are genre ally of two types. First one is induced discipline and the second one is self-discipline. Induced discipline is something that others taught us or we learn by seeing others. While self-discipline comes from within and we learn it on our own self. Self discipline requires a lot of motivation and support from others Above all, following your daily schedule without any mistake is also part of being disciplined. We need discipline in almost everywhere in life. So, it is best to praction discipline from the early stages of our life. Self-discipline means different things to different people. for students, its meaning is different. for an employee its meaning is different, and for children its meaning is different moreover, the meaning of discipline changes with the stages of life and priority.

Not everyone can be disciplined because t requires a lot of hard work and dedication. Also, it needs a positive mind and a healtty body. One has to be strict to discipline so that he can successfully complete the road of success.

The disciple is a staircase by which the person achieve success. It helps a person to focus on his goals in life. Also, it does not let him derived from the goal. Besides, it brings perfection in a person life by training and educating the mind and body of the person to the rules and regulation, which will help to be an ideal citizen of the society. In conclusion we can say that discipline is one of the key elements of anyone's life.

The Forgotten Toolbox

विराज भोसले

तृतीय वर्ष यंत्र

In the corner, out of sight,

A toolbox waits without a light.

Once it worked both day and night,

Building dreams with all its might.

Dust and silence cover its face,

But tools within still hold their place.

Waiting for a hand to guide,

To bring them back with hope and

pride.

In college labs, it finds its way,

Helping students learn each day.

From projects small to dreams so

wide,

It builds the future, side by side.

The Amazing World of Robots

प्रतिक पिसाळ

तृतीय वर्ष मेकॅट्रॉनिक्स

Introduction

What comes to your mind when you hear the word 'robot'? A human-like machine? No, robots do not always look like humans! Some are big machines making cars, while others are tiny robots exploring Mars. Robots are helping us in many ways, making work easier and industries smarter. But how did robots start?

How Robots Started

The idea of robots is very old, but modern robots started in the 20th century. In 1961, the first industrial robot, Unimate, began working in a car factory. Since then, robots have improved a lot. Today, they are used in factories, homes, hospitals, and even space!

Different Types of Robots

Robots come in many shapes and sizes, each made for a special job:

• Industrial Robots – Work in factories to build products.
• Humanoid Robots – Look and act like humans.
• Autonomous Robots – Self-driving cars and drones.

How Robots Help in Industries

• Manufacturing: Robots build products with high accuracy.
• Automotive: They help make cars in factories.
• Electronics: Robots assemble mobile phones and computers.
• Construction: Machines build houses and big structures.

Good and Bad Sides of Robots

Robots are useful, but they also have some challenges: Jobs: Robots replace some jobs but also create new ones. AI Decisions: Should robots make big decisions for humans? Safety: Robots can be hacked if not protected properly.

Advantages of Robots

In the Medical Field:
• Medical Engineering: They assist in surgeries and artificial body parts.
• Precision in Surgery – Robots help doctors perform complex surgeries with great accuracy.
Faster Recovery – Minimally invasive robotic surgeries lead to quicker patient recovery.
• Remote Treatment – Telemedicine robots allow doctors to treat patients from a distance.
• Medical Assistance – Robots help in physical therapy and elderly care.

In the Industrial Field:
• Workplace Safety – Dangerous tasks, such as welding or handling chemicals, are done by robots.
• 24/7 Operation – Unlike humans, robots do not need breaks or rest.
• Higher Production Rates – Robots help industries manufacture products faster and cheaper.

Advanced Robots

With advancements in artificial intelligence and automation, robots are becoming more capable. Some examples of advanced robots include:

AI-Powered Robots – These robots can learn from their environment and improve their performance.

Exoskeletons – Wearable robotic suits that help paralyzed people walk again.

Nano Robots – Tiny robots that work inside the human body to treat diseases.

Humanoid Robots – Robots like Sophia that can talk, recognize emotions, and assist in customer service.
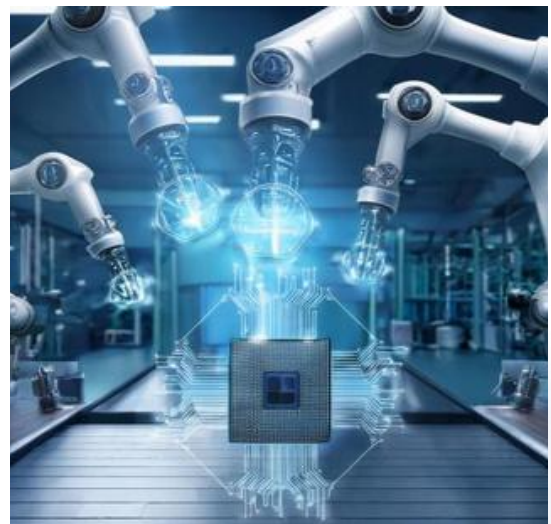
The Future of Robots

Imagine a world where robots clean homes, assist doctors, and make cities smarter. The future of robots is full of possibilities, but we must use them wisely to improve life for everyone.

Conclusion

From building cars to exploring space, robots are changing the world. As technology grows, robots will become even more helpful. The question is—are we ready to welcome this robot future?

मी आणि माझे मन

माधवी कासेवाड

तृतीय वर्षी विद्युत

मी आणि माझे मन

आज अचानक मनामध्ये एक विचार

आला आणि विचारात पाडून गेला.....

हसत हसत स्वतःला विचारलं आहे का

तुझं कोणी..?

मन हसत हसत म्हणाले, जागी हो मुली..!

आयुष्याच्या ह्या प्रवासात खूप आले

आणि खूप गेले..

पण मन पुन्हा हसत हसत म्हणाले, कोण

किती टिकले..!

मग स्वतःलाच एक प्रश्न विचारला असेल

का असे काही..?

मन परत हसत हसत म्हणाले, बाळा जग

आहे स्वार्थी..!

मी म्हणाले, आहेत माझे खूप सारे आले

नाही मी एकटी..

मन हसत हसत म्हणाले, तुला एकटच

लडायच आहे शेवटी..!

मग भी मनालाच रागावून विचारले तू तर

आहेस ना माझ्याशी जोडलेले..

मन परत हसून म्हणाले, आई बाबा सोडले

तर कोणी नाही कोणाचे..!

असा होता माझा राजा शिवाजी

अच्युत माने

तृतीय वर्ष संगणक

पर्वा नाही केली कधी जीवाची असा
होता माझा राजा शिवाजी ||
झुंजत होती रयत छळाशी
हात पाय त्यांचे आले होते गळ्याशी
सत्ता होती कपटी मुघलांची
खात नव्हतं कोण भाकरी सुखाची
अश्या वेळी जन्मल एक रत्न शिवनेरी
दाखवण्यास रयतेला पहाट सोन्याची
घेतली त्यानं शपथ स्वराज्याची
साक्षी ठेवून पिंड महादेवाची
धरूनी तळपती तलवार मनगटाशी|
कापली त्यानं दोर अन्यायाची
फाडून अफजल अन् कापून बोटं
शाहिस्त्याची
गरजला परत कोण नडेल का मराठ्याशी
तानाजी, बाजी, येसाजी, कोंढाजी
साऱ्यांनीच केली शर्थ जीवनाची
म्हणुनी, धनी असताना भीती कोणाची
राखली त्यानेच शान भगव्याची

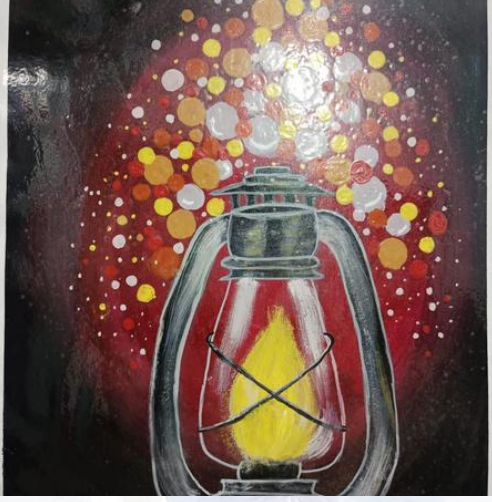त्यानेच शिकवली कला जगण्याची
पर्वा नाही केली हो जीवाची असा होता
माझा राजा शिवाजी |

चित्रकला

स्वराली सावंत

तृतीय वर्ष विद्युत

RATAN TATA: A Legacy of Innovation and Leadership

देव बागलकोटी

द्वितीय वर्ष मेकॅट्रोनिक्स

Ratan Tata, born on December 28, 1937, is an Indian industrialist, philanthropist, and former chairman of Tata Sons. As the great-grandson of Jamsetji Tata, the founder of the Tata Group, Ratan Tata played a crucial role in transforming the company into a global powerhouse Ratan Tata joined the Tata Group in 1961 and worked on the shop floor of Tata Steel before taking leadership roles within the company. In 1991, he became the chairman of Tata Sons, leading the group through a period of rapid modernization and international expansion. Under his leadership, Tata Motors acquired Jaguar Land Rover, Tata Steel acquired Corus, and Tata Consultancy Services (TCS) became one of the world's leading IT firms. original text, images, videos, and other content. To fully understand generative AI, it is essential to first grasp the foundational technologies on which it is built: machine learning (ML) and deep learning. One of Ratan Tata's most notable contributions was the launch of the Tata Nano in 2008, the world's cheapest car, aimed at making automobiles affordable for middle-class Indians. Although the project faced challenges, it reflected Tata's commitment to innovation and social impact

Beyond business, Ratan Tata has been actively involved in philanthropy through the Tata Trusts, focusing on education, healthcare, and rural development. His efforts in supporting startups and young entrepreneurs have also been significant.

Ratan Tata retired as chairman of Tata Sons in 2012 but remains an influential lbusiness leader and philanthropist. His visionary leadership, ethics, and dedication to nation-building continue to inspire millions worldwide.

Ratan Tata's leadership was marked by his emphasis on ethical business practices, innovation, and global expansion. He successfully transformed the Tata Group from a traditional Indian conglomerate into an internationally recognized brand. His strategic vision led to the introduction of revolutionary products such as the Tata Indica, India's first indigenously designed car, and the Tata Nano, a symbol of affordable mobility. Additionally, he played a crucial role in expanding Tata's presence steel, automobiles, IT, and telecommunications, making the group a dominant force in global markets Apart from his corporate achievements, deep commitment to social causes. Through to healthcare, and scientific research. His investments in Indian startups, including Ola, Paytm, and Urban Ladder, demonstrate his belief in fostering innovation and entrepreneurship civilian awards,

the Padma Bhushan and Padma Vibhushan, Ratan Tata's legacy extends beyond business-he remains a role model for ethical leadership, resilience, and philanthropy. Even after stepping down as chairman of Tata Sons in 2012, Ratan Tata continues to influence business and philanthropy. His guidance in shaping India's startup ecosystem has helped many young entrepreneurs build successful ventures. He is also an advocate for sustainable development and has supported various green energy and environmental initiatives. His leadership style, which emphasizes long-term vision over short-term gains, has left a lasting impact on the

corporate world. Ratan Tata's journey is a testament to the power of visionary leadership, ethical business practices, and social responsibility. His dedication to nation-building and innovation has not only strengthened the Tata Group but has also contributed to India's global reputation. As a business leader, philanthropist, and mentor, his legacy will continue to inspire generations to come, shaping the future of Indian industry and entrepreneurship..

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"ROBOTIC WORK IN A INDUSTRY"

आविष्कार पाटील

द्वितीय वर्ष मेकॅट्रोनिक्स

Robotics developments are actively reshaping the world we live in. From industrial automation to autonomous drones and collaborative robots, the capabilities of robotic systems have grown exponentially. However, a robot is only as good as the components it's built from. This article from Amphenol explores the differences between connectors for control and communication functions in robotics applications

1. Al-Driven Robotics

Robots will become smarter with machine learning and computer vision, allowing them to adapt to changing environment Al-powered robots will optimize production efficiency, predict maintenance needs, and reduce downtime our paragraph text

2.Collaborative Robots (Cobots)

Cobots will work alongside humans, handling repetitive or dangerous tasks while humans focus on higher-level work. They will be more affordable, easier to program, and adaptable for small and medium enterprises (SMES)

3.Autonomous Mobile Robots (AMRs)

Warehouses and factories will use AMRS for logistics, reducing human intervention in material handling. AMRs will navigate complex environments using Al, sensors, and lot connectivity

4. 3D Printing and robotics

Robots will enhance additive manufacturing (3D printing), enabling faster and more customized

production. This will reduce material waste and allow on-demand manufacturing.

They can provide detailed recommendations to users and experts and act independently, reducing the need for human intelligence or intervention—a classic example being a self-driving car.

As of 2024, most AI researchers, practitioners, and AI-related headlines are focused on breakthroughs in generative AI (Gen AI), a technology capable of creating original text, images, videos, and other content. To fully understand generative AI, it is essential to first grasp the foundational technologies on which it is built: machine learning (ML) and deep learning.

महाराष्ट्राची संस्कृती

समृद्धी डुबल

द्वितीय वर्ष मेकॅट्रोनिक्स

महाराष्ट्र हे जमिनीच्या क्षेत्रफळाच्या बाबतीत भारतातील तिसरे आणि लोकसंख्येच्या बाबतीत भारतातील दुसरे मोठे राज्य आहे. ज्ञानेश्वर, नामदेव, चोखामेळा, एकनाथ आणि तुकाराम या वारकरी धार्मिक चळवळीतील मराठी संतांचा महाराष्ट्राला मोठा इतिहास आहे, जे महाराष्ट्राच्या संस्कृतीचा किंवा मराठी संस्कृतीचा एक आधार आहे. १७ व्या शतकातील छत्रपती शिवाजी महाराजांनी स्थापन केलेल्या स्थानिक मराठा साम्राज्याचा महाराष्ट्राच्या संस्कृतीवर प्रचंड प्रभाव आहे. महाराष्ट्र राज्यामध्ये हिंदू, मुस्लिम, बौद्ध, शीख, ख्रिश्चन इत्यादींशी संबंधित अनेक संस्कृतींचा समावेश आहे. भगवान गणेश, मारुती, शिवलिंगाचे रूप असलेले महादेव, खंडोबा, काळूबाई देवी आणि भगवान विठ्ठल या महाराष्ट्रातील हिंदूंनी पूजलेल्या काही देवता आहेत.

महाराष्ट्राची विभागणी ५ प्रदेशात झाली आहे: कोकण, पश्चिम महाराष्ट्र, उत्तर महाराष्ट्र, मराठवाडा, विदर्भ मराठी भाषेच्या वेगवेगळ्या बोली, [१] लोकगीते, खाद्यपदार्थ, पोशाख आणि जातीयतेच्या रूपात प्रत्येकाची स्वतःची सांस्कृतिक ओळख आहे. खेळ ही एक शारीरिक व मानसिक कला आहे. खेळल्यामुळे शारीरिक विकास साधतो तसेच मानसिकताही प्रबळ बनते. दररोज किमान अर्धा ते एक तास कोणतातरी खेळ खेळला पाहिजे. खेळामुळे चपळता वाढते त्याचप्रमाणे आपल्या व्यक्तिमत्त्वाचा विकासही घडतो. खेळाचे वेगवेगळे प्रकार आहेत. वेगवेगळे खेळ वेगवेगळ्या पद्धतींनी खेळले जातात.

मराठी हिंदू अनेक धार्मिक व्यक्तींचा आदर करतात. बंका महार, भागू, दामाजीपंथ, कान्होपात्रा, कर्ममेलम, निर्मला, सदना, सखुबाई, सत्यकाम जबाली आणि सोयराबाई या प्रदेशात उगम पावलेल्या व्यक्तींमध्ये आहेत. २०११ च्या जनगणनेनुसार, हिंदू धर्म हा राज्यातील ७९.८३% लोकसंख्येचा प्रमुख धर्म होता, तर एकूण लोकसंख्येच्या ११.५४% मुस्लिम होते. महाराष्ट्रात भारतातील सर्वात जास्त बौद्ध आणि जैन लोकसंख्या आहे. महाराष्ट्राच्या एकूण लोकसंख्येमध्ये बौद्ध धर्माचा वाटा ६% आहे, ६.५३ दशलक्ष अनुयायी आहेत, जे भारतातील सर्व बौद्धांपैकी 77% आहे. जैन, ख्रिश्चन आणि शीख लोकसंख्येच्या अनुक्रमे 1.2%, 1.0%, 0.2% होते

जात संपादन पारंपरिक जातीय पदानुक्रमाचे नेतृत्व ब्राह्मण जाती- चित्पावन, कऱ्हाडे, देशस्थ, सारस्वत आणि चंद्रसेनिया कायस्थ प्रभू यांनी केले. ब्रिटिश राजवटीत मुंबईत पाठारे प्रभू आणि दैवज्ञ ब्राह्मण समाजांचा समावेश होता. पश्चिम महाराष्ट्रात मराठा 32% आणि कुणबी 7% आहेत, तर इतर मागासवर्गीय लोकसंख्या (कुणबी व्यतिरिक्त) 27% होती. मध्यवर्ती श्रेणीतील इतर जातींचा समावेश आहेः गुज्जर आणि राजपूत जे शतकानुशतके उत्तर भारतातून महाराष्ट्रात स्थलांतरित झाले.
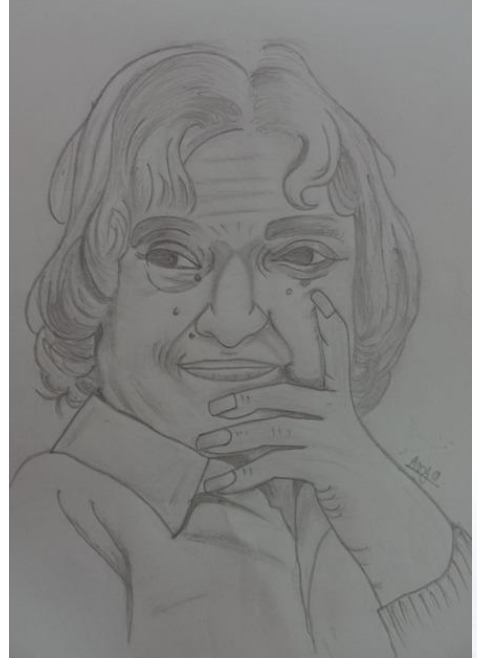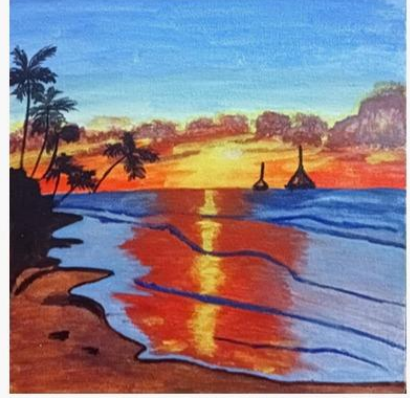
चित्रकला

श्रेया पाटील

तृतीय वर्ष संगणक

आर्या मारवाडकर

तृतीय वर्ष अणू. व दूर.

Drones in Precision Agriculture

क्षितिज पाटील

द्वितीय वर्ष मेकॅट्रोनिक्स

In the ever-evolving world of agriculture drones have emerged as game-changers transforming traditional farming methods into a hightech, data-driven practice. Precision agriculture leverages drone technology to enhance productivity reduce costs and ensure sustainable farming.

How Drones Are Used in Agriculture Drones, also known as Unmanned Aerial Vehicles (UAVs), offer a range of applications that help farmers monitor and manage their crops more efficiently.Here's how drones are making an impact1. Aerial Imaging & Mapping Equipped with high-resolution cameras, drones capture detailed images of farmlands. These images help in soil analysis, topography mapping, and field planning, ensuring that crops are planted in the most fertile areas 2. Crop Monitoring & Health Analysis Using multispectral and thermal imaging, drones detect plant stress, diseases, and nutrientdeficiencies before they become visible to the naked eye. Farmers can take timely action, preventing yield loss and ensuring healthier crops.

3. Precision Spraying & Seeding Agricultural drones can spray pesticides, fertilizers, and herbicides with pinpoint accuracy. This reduces chemical waste, minimizes environmental impact, and saves costs. Some drones are also capable of planting seeds, streamlining the sowing process.

4. Irrigation & Water Management Drones with thermal sensors identify areas suffering from water stress. This information allows farmers to optimize irrigation, conserving water while ensuring that crops receive adequate hydration.

5. Livestock Monitoring Farmers can use drones to track livestock, detect injured or sick animals, and ensure their well-being across large pastures.

Benefits of Drone Technology in Farming-

Increased Efficiency:
Rapid data collection and analysis help farmers make informed decisions.

Cost Savings:
Optimized use of fertilizers, water, and pesticides reduces overall expenses.

Higher Crop Yields:
Early detection of issues ensures timely interventions, leading to improved productivity.

Sustainability:
Reduced chemical runoff and efficient resource management make farming more eco-friendly.

Labor Reduction:
Automation of farming tasks reduces the need for extensive manual labor.

Challenges in using AI in manufacturing industry : Case study

संग्राम जाधव

तृतीय वर्ष यंत्र

Abstract

The integration of Artificial Intelligence (AI) in the manufacturing industry promises significant advancements in automation, predictive maintenance, and operational efficiency. However, despite its potential, AI adoption is fraught with numerous challenges that hinder its widespread implementation. It explores the primary technological, organizational, and economic challenges manufacturers face when incorporating AI into shop floor operations. Key obstacles include data quality and availability, integration with legacy systems, workforce skill gaps, and high initial investment costs.

To illustrate these challenges, presents case studies from two industry leaders-BMW and Siemens-both of whom have pioneered AI applications in their manufacturing processes. BMW's smart factory initiative demonstrates the complexities of deploying AI for predictive maintenance and autonomous logistics, deploying AI management and employee resistance. Siemens, through its digital factory approach, faces challenges in integrating AI with existing infrastructure and managing faces challenges analyzing these case studies, this paper identifies key strategies for overcoming these hurdles and offers these case manufacturing.

1. Introduction
Background:

The manufacturing industry is increasingly adopting Artificial Intelligence (AI) to optimize production processes, improve product quality, and enhance operational efficiency. AI technologies such as predictive maintenance, autonomousrobots, and real-time data analytics are transforming traditional manufacturing setups into smart, connected factories.

By examining these case studies, this paper seeks to provide insights into overcoming the barriers that manufacturers encounter in their AI journeys.

Workforce Reskilling

The adoption of AI in manufacturing requires a skilled workforce capable of working with AI technologies. Traditional manufacturing jobs are transforming, and new roles are emerging that require technical expertise in AI and machine learning. However, there is often a skills gap, and reskilling initiatives must be implemented to ensure that workers can adapt to the AI-driven workplace. Training programs and partnerships with institutionscanhelpbridgethisgap, educational

As manufacturing operations become more data-driven, data security is a primary concern. AI systems rely on vast amountsof data, much of which is sensitive. Unauthorized accessorbreachescanleadto operational disruption or loss ofcompetitive advantage. Cybersecurity measures need to be robust to protect AI- driven manufacturing systems from malicious attacks. This involves protecting data at every stage, from collection to processing and storage.

1. AI in action: BMW and SIEMEN'S journey towards Smart Manufacturing.
BMW'S Smart Factory: AI Implementation and Its Impact on Production Efficiency

Challenge:
Unplanned downtime in car assembly lines due to equipment failures can significantly disrupt production schedules and impact overall efficiency. Traditionally, maintenance was performed based on pre- defined schedules, which could lead to

Unnecessary maintenance:
Replacing parts before they reach their lifespan, wasting resources. Missed critical issues: Equipment failures occurring before the next scheduled. maintenance, leading to production delays and potential safety concerns.
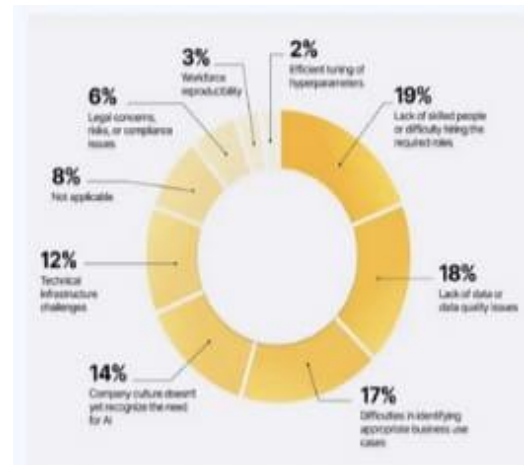
The BMW Group implemented a smart monitoring system utilizing Artificial Intelligence (Al) at their Regensburg assembly plant. This system focuses on:

Sensor Data Collection: Sensors are installed on load carriers used to transport vehicles. throughout the assembly line. These sensors collect data on various parameters, including Power consumption, Movement abnormalities and Barcode readability.

Real-Time Analysis: The collected data is transmitted to the plant control system and then to the BMW Group's cloud-based predictive maintenance platform. Here, advanced algorithms continuously analyze the data to identify potential issues with the load carriers.

Al-powered Anomaly Detection: The Al system searches for irregularities in the sensor data that might indicate potential malfunctions, such as fluctuations in power consumption or unusual movements of the load carriers

Proactive Maintenance: When anomalies are detected, the system triggers an alert notifying maintenance personnel. allows the into address potential issues This before they escalate into major failures that could halt production

Benefits:

Reduced Downtime: By proactively addressing potential equipment issues, the Al-powered system helps minimize

Improved Efficiency: Reduced downtime and optimized maintenance practices contribute to overall production efficiency and increased output.

Enhanced Data-Driven Decision Making: The Al system empowers personnel with valuable insights into equipment health, allowing them to make informed decisions regarding maintenance schedules and resource allocation.

Overall impact: The BMW Regensburg plant's use offal for predictive maintenance showcases the technology's potential to transform car manufacturing. By leveraging offal, BMW can achieve significant Al improvements in production efficiency, optimize maintenance practices, and enhance overall operational excellence. This case study highlights the growing role of Al in the automotive industry and its potential to revolutionize various aspects of car manufacturing.

Production Optimization: Siemens deployed Al-

powered software that optimizes the production flow by analyzing real-time data from the shop floor. The Al analyzing settings to ensure efficient production, helping to reduce waste and improve throughput.

Benefits:

Reduced Defects:

The Al-driven quality control system reduced the rate of defective PLCs by 15%, ensuring that only high quality products leave the plant.

Downtime Reduction:

Predictive maintenance decreased unplanned downtime by 30%, significantly improving operational efficiency

Increased Production Efficiency:

The production optimization system resulted Ina 10% increase in overall production capacity, enabling the plant to meet growing demand without expanding its footprint.

Cost Savings:

Al implementation led to annual cost savings of approximately €250,000 due to reduced downtime and more efficient resource utilization.

Metric	Value
Reduceddefect rate	15%reduction
Unplanned downtime	30%reduction
Production Capacity	10%Increased

Table2.Al implementation impact at Siemens Amberg plant.

Conclusion

The integration of Artificial Intelligence (Al) into the manufacturing industry presents both transformative potential and considerable challenges. The Siemens Amberg plant case study highlights how Al can significantly enhance manufacturing by reducing defect rates by 15%, unplanned downtime operations decreasing 30%, and by increasing production capacity by 10%. These improvements underscore Al's capability to optimize quality control, predictive maintenance, and production efficiency.

Similarly, the BMW case study illustrates how Al has revolutionized automotive manufacturing through advanced automation and process optimization. BMW's use of Al for real-time data analysis, predictive maintenance, and autonomous systems has led to enhanced production efficiency and product quality. The introduction of Al-driven robotics and automated workflows at BMW has resulted in streamlined operations and increased manufacturing flexibility.

Despite these advancements, both case studies reveal common challenges associated with Al adoption. High initial investments are required formal technology, integration, and employee training. The complexity of incorporating Al systems into existing processes demands significant technical expertise and time. Effective systems into Al large-scale, high-quality data and addressing the skill gaps within the workforce. Additionally, organizational resistance to technological change can hinder the smooth transition to Al-driven operations

References

1. Bohn, F., Jeschke, S., & Brecher, C. (2020). AI in Manufacturing: Challenges Implementation Strategies. and

2. Springer Burmester, D., & Busch, H. (2021). "Al-Driven Digitalization: BMW's Smart Factory Implementation." Journal of Manufacturing Systems, 58, 124-136.

1.SiemensAmberg Plant Case Study:

Siemens AG. (2023). Digitalization in the Amberg Plant.

Lutz, J., & Bartsch, C. (2021). How Siemens Uses Al to Transform Manufacturing Operations.

2. BMWCaseStudy:

BMW Group. (2023). The BMW Group Intelligence in BMW's Manufacturing.

Keller, T., & Müller, A. (2022). Al and Automation in the BMW Production System.

कृत्रिम बुद्धिमत्ता (Artificial Intelligence)

संस्कार देशमाने

तृतीय वर्ष संगणक

कृत्रिम बुद्धिमत्ता (Artificial Intelligence - AI), मशीन लर्निंग (Machine Learning - ML), आणि डीप लर्निंग (Deep Learning - DL) हे आधुनिक तंत्रज्ञानाचे महत्त्वाचे घटक आहेत, जे विविध क्षेत्रांमध्ये क्रांतिकारी बदल घडवत आहेत. आपल्या महाविद्यालयाच्या मासिकासाठी या विषयांवर मराठीमध्ये लेख तयार करण्यासाठी, खालील माहितीचा आधार घेता येईल:

कृत्रिम बुद्धिमत्ता (AI):

कृत्रिम बुद्धिमत्ता म्हणजे संगणक प्रणालींना मानवी बुद्धिमत्तेप्रमाणे कार्य करण्याची क्षमता प्रदान करणे. यामध्ये समस्या सोडवणे, निर्णय घेणे, भाषा ओळखणे, आणि शिकणे यांसारख्या कार्यांचा समावेश होतो. उदाहरणार्थ, व्हॉइस असिस्टंट्स (जसे की सिरी, अलेक्सा) किंवा स्वयंचलित वाहने ही AI च्या उपयोगाची उदाहरणे आहेत.

मशीन लर्निंग (ML):

मशीन लर्निंग हा AI चा एक उपविभाग आहे, ज्यामध्ये संगणक प्रणाली मोठ्या प्रमाणातील डेटा वापरून स्वतःहून शिकतात आणि आपल्या कार्यक्षमतेत सुधारणा करतात. यामध्ये विशेषतः सांख्यिकी आणि गणितीय मॉडेल्सचा उपयोग करून, प्रणाली नवीन डेटा ओळखून त्यानुसार निर्णय घेऊ शकतात. उदाहरणार्थ, स्पॉटिफाय किंवा नेटफ्लिक्स सारख्या सेवा आपल्या पसंतीनुसार संगीत किंवा चित्रपट सुचवण्यासाठी ML चा

डीप लर्निंग (DL):

नेटवर्क्सचा (ANNs) वापर करून मानव मेंदूच्या कार्यप्रणालीचे अनुकरण केले जाते. यामुळे प्रणाली अत्यंत जटिल आणि असंरचित डेटाचे (जसे की चित्रे, आवाज) विश्लेषण करून निर्णय घेऊ शकतात. उदाहरणार्थ, चेहरा ओळखणे, भाषांतर प्रणाली, किंवा स्वयंचलित वाहनांचे नियंत्रण हे DL च्या उपयोगाचे काही क्षेत्र आहेत.

AI, ML, आणि DL मधील फरक:

कृत्रिम बुद्धिमत्ता (AI): मानवी बुद्धिमत्तेचे अनुकरण करणारी कोणतीही संगणक प्रणाली.

मशीन लर्निंग (ML): AI चा उपविभाग, ज्यामध्ये प्रणाली डेटाच्या आधारे शिकतात आणि स्वतः सुधारणा करतात.

डीप लर्निंग (DL): ML चा उपविभाग, ज्यामध्ये अनेक स्तरांचे न्यूरल नेटवर्क्स वापरून जटिल डेटा विश्लेषण केले जाते.या तिन्ही तंत्रज्ञानांचा उपयोग आज विविध क्षेत्रांमध्ये होत आहे, जसे की आरोग्यसेवा, वित्त, शिक्षण, आणि उत्पादन क्षेत्र. त्यांच्या मदतीने कार्यक्षमता वाढवणे, खर्च कमी करणे, आणि नवीन उत्पादने व सेवांची निर्मिती करणे शक्य झाले आहे.कृत्रिम बुद्धिमत्ता (AI), मशीन लर्निंग (ML), आणि डीप लर्निंग (DL) मधील भविष्यातील प्रवृत्ती (Future Trends) कृत्रिम बुद्धिमत्ता, मशीन लर्निंग आणि डीप लर्निंग हे क्षेत्र सातत्याने विकसित होत असून भविष्यात अनेक नवे ट्रेंड उदयास येणार आहेत. खालील काही प्रमुख ट्रेंड्स महत्त्वाचे ठरतील:

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1. आत्म-सुधार करणारी AI प्रणाली (Self-Learning AI)

भविष्यात AI प्रणाली स्वतःहून शिकू शकतील आणि कमी मानवी हस्तक्षेपाने निर्णय घेऊ शकतील. उदाहरणार्थ, AI-मधील Autonomous AI Agents हे सतत स्वतःहून नवीन माहिती ग्रहण करून सुधारणा करतील. उदाहरण:
स्वतःहून नवीन भाषा शिकणारे किंवा संवाद सुधारू शकणारे चॅटबॉट्स वैद्यकीय निदान करणाऱ्या प्रणाली जे नवीन संशोधनानुसार अपडेट होतील

2. नैसर्गिक भाषा प्रक्रिया (Advanced Natural Language Processing - NLP)

AI आधारित NLP मॉडेल्स अधिक अचूक आणि मानवीय संवादक्षम बनतील. OpenAI चा GPT-5 आणि त्यानंतरचे मॉडेल्स अधिक बुद्धिमान होतील.

उदाहरण:
स्वयंचलित भाषांतर प्रणाली जी कोणत्याही भाषेत सहज अनुवाद करू शकेल
AI लेखक आणि सहाय्यक, जे पूर्णपणे स्वयंचलित लेखन करू शकतील

3. AI आणि रोबोटिक्सचा मिलाफ (AI in Robotics)

भविष्यात AI-आधारित स्वायत्त रोबोट्स विविध क्षेत्रांत मोठी भूमिका बजावतील.

उदाहरण:
वैद्यकीय रोबोट्स जे शस्त्रक्रिया करू शकतात
स्मार्ट घरगुती सहाय्यक रोबोट्स जे घरातील कामे करण्यास सक्षम असतील

4. एआय आणि सायबर सुरक्षा (AI for
सायबर हल्ले रोखण्यासाठी AI वापर

धोके ओळखू शकतील आणि सुरक्षेची पातळी सुधारू शकतील.

उदाहरण:
बँकिंग आणि फायनान्स क्षेत्रातील AI आधारित फसवणूक शोध प्रणाली मोठ्या कंपन्यांसाठी स्वयंचलित हॅकिंग संरक्षण यंत्रणा

5. AI आणि आरोग्यसेवा (AI in Healthcare)

AI, ML आणि DL चा आरोग्य क्षेत्रात मोठ्या प्रमाणात वापर होईल.

उदाहरण:
AI आधारित निदान प्रणाली जे कर्करोग किंवा हृदयरोग ओळखण्यात मदत करतील AI-सहाय्यित औषध संशोधन, जे नवीन औषध निर्माण करण्यास मदत करेल

6. क्वांटम मशीन लर्निंग (Quantum Machine Learning - QML)

क्वांटम संगणकांच्या मदतीने मशीन लर्निंग अल्गोरिदम अधिक वेगाने शिकू शकतील.

उदाहरण:
QML आधारित अल्गोरिदम, जे गुंतागुंतीचे गणितीय मॉडेल्स सोडवण्यासाठी वापरले जातील AI चा ब्रेकथ्रू इनोव्हेशन, जो अत्यंत वेगवान संगणकीय शक्ती वापरेल

8. AI आणि स्मार्ट सिटी (AI in Smart Cities)

भविष्यात AI चा वापर शहरे अधिक स्वयंचलित आणि स्मार्ट करण्यासाठी होईल.

उदाहरण:
स्मार्ट ट्रॅफिक मॅनेजमेंट जिथे वाहतूक गतीशाली केली जाईल AI आधारित प्रदषण नियंत्रण प्रणाली

Importance of skill development in education

भाग्यश्री पाटील

द्वितीय वर्ष मेकॅट्रोनिक्स

To harness potential benefits of demographic dividend of India, Prime Minister Narendra Modi launched the skill India Mission Kaushal Bharat Kushal Bharat on 15th July 2015. This mission comprises of various initiatives like national skill Development mission, national policy for skill development and Enter preneurship, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Skill loan scheme and rural India skill. This campaign aims to converge and monitor all Skill development across the country. It targets to train over 40 crore people in different skills by 2022. The main focus is to provide vocational training for all occupation like carpenters, cobblers, black smiths, nurses, tailors, weavers etc. More emphasis will be given in a new area like real estate, construction, transport, textile, banking, tourism ete. This campaign cover both rural and ruban areas. For rural areas, Deen Dayal Upadhyay Kaushal Vikas Yojana has been launched and in urban areas, many training centres are being established across the country. Major advantages of this mission are that it creates employment, improve entrepreneurship quality, development, make self-development and provide balanced growth in all the sectors. Several challenges come in the way of skill India mission are inefficient execution of the plan, red tapism, Nepotism while providing jobs, a mismatch in skills provided, less awareness in rural areas and the orthodox mindset of the people. Such a visionary initiative like skill Indian mission is the need of the hour that will boost the overall economic condition of the country and created synergy between education, training and work in order to make India the skill capital of the world.

IMPORTANCE OF NATIONAL EDUCATIONAL POLICY

श्वेता देशमुख

द्वितीय वर्ष मेकॅट्रोनिक्स

The new National Education Po(NEP) 2020, approved by the government. is the first education policy of the 21st century. The aim of this policy is to transform the indian education system as per the needs of 21st century. It will bring substantial reforms in school & higher education system in our country. The new education policy focuses on all essential aspects of education like early education, reshaping the curriculum & reforming the examination procedure. A new 5+3+3+4 curricular structure will replace the current 10+2 structure. The new structure will have 12 years of schooling with three years of pre-schooling/Aanga wadi. The structure will be taught in their mother tongue or regional language until class 5 For allround develpment of the society, it is essential to take effective measures in the direction of the implementaion of our new education policy. Common school education system is recommended. The common core of the national curricular framework has to include contents related to national integrity & identity. The new policy promises to rectify the poor literacy & dropout levels in middle schools with basis aspects of educating the masses. Lots of measures are required to be taken to bring the scheduled tribes at par with other general. fellow. The new educational policy will make the education system holistic, flexible, multidisci-plinary & more inclusive. High priority would be to introduce displine in the implementation of the new education policy.
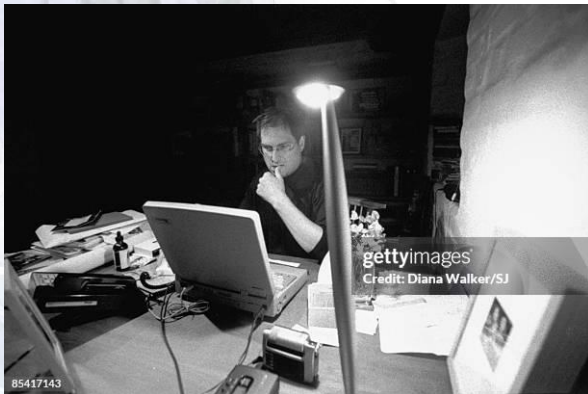
Steve Jobs

बिलाल मुलानी

द्वितीय वर्ष मेकॅट्रोनिक्स

Early Life1. Birth: Steve Jobs was born on February 24, 1955, in San Francisco, California.2. Parents: His biological parents were Joanne Schieble and Abdulfattah "John" Jandali.3. Adoption: Steve was adopted by Paul and Clara Jobs, a
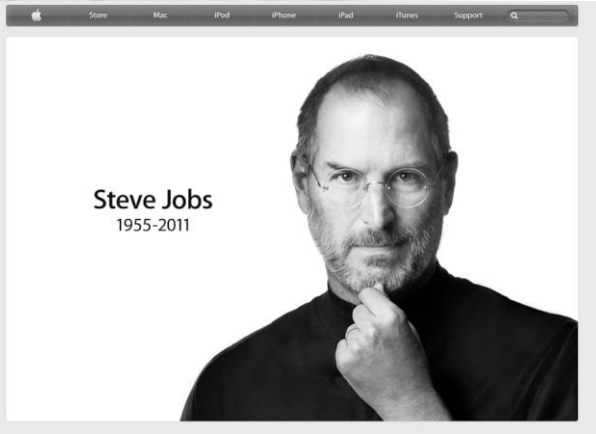

machinist and an accountant, respectively.4. Childhood: Steve grew up in Mountain View, California, and showed an early interest in electronics and design.Education1. High School: Steve attended Homestead High School in Cupertino, California.2. College: He attended Reed College in Portland, Oregon, but dropped out after one semester due to financial constraints.3. Calligraphy: During his time at Reed, Steve developed an

interest in calligraphy, which later influenced Apple's typography.Career1. Apple Co-Founder: Steve co-founded Apple Computer with Steve Wozniak and Ronald Wayne in 1976.2. Apple I and II: Steve and Wozniak designed and built the Apple I and II computers, which launched Apple's success.3. Macintosh Computer: Steve introduced the Macintosh computer in 1984, which revolutionized the personal computer industry.4. NeXT Computer: After leaving Apple in 1985, Steve founded NeXT Computer, which developed innovative hardware and software technologies.5. Pixar Animation: Steve acquired Pixar Animation Studios in 1986 and served as its CEO until it was acquired by Disney in 2006.6. Apple
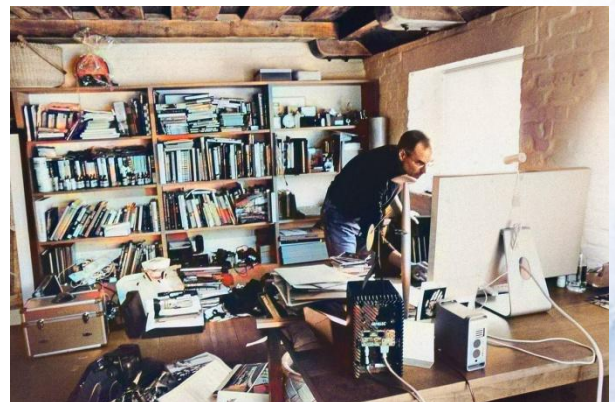
Return: Steve returned to Apple in 1997 and led the company's resurgence with innovative products like the iMac, iPod, iPhone, and iPad.Personal Life1. Relationships: Steve had a complex personal life, with relationships with Chrisann

Steve Jobs
1955-2011

Brennan, Joanna Hoffman, and Laurene Powell, whom he married in 1991.2. Children: Steve had four children: Lisa Brennan-Jobs, Reed Jobs, Erin Jobs, and Eve Jobs.3. Health Issues: Steve struggled with health issues, including a rare form of pancreatic cancer, which he battled for several years.Legacy1. Innovative Products: Steve's legacy is marked by innovative products that transformed the technology industry.2. Design Philosophy: Steve's emphasis on design and user experience has influenced generations of product designers and developers.3. Entrepreneurial Spirit: Steve's entrepreneurial spirit and willingness to take risks have

inspired countless entrepreneurs and startups.Death1. Date: Steve Jobs passed away on October 5, 2011, at the age of 56.2. Cause: He died due to complications from a rare form of pancreatic cancer.3. Tributes: Steve's passing was met with an outpouring of tributes and condolences from around the world, celebrating his life and legacy.

इलॉन मस्क

मानस सबनीस

द्वितीय वर्ष मेकॅट्रोनिक्स

इलॉन रीव्ह मस्क (जून २८, इ.स. १९७१:गॉटिंग, दक्षिण आफ्रिका -) हा एक दक्षिण आफ्रिकेचा कॅनेडियन- अमेरिकन व्यवसायिक आहे. हा टेसला मोटर्स ह्या अमेरिकन कंपनीचा संस्थापक व मुख्याधिकारी आहे. तसेच स्पेस एक्स आणि सोलर सिटी ह्या कंपन्यांचे अधिकारी श्रेणीचे कार्यभार सांभाळतो. जन्म-जून२८, इ.स. १९७१गॉटिंग,दक्षिण आफ्रिका निवासस्थान - कॅलिफोर्निया, अमेरिका राष्ट्रीयत्व - अमेरिकन, कॅनडियन, दक्षिण आफ्रिकी नागरिकत्व - अमेरिकन शिक्षण-क्वीन्सविद्यापीठ, पेनसिल्व्हेनिया विद्यापीठ पेशा - टेसला मोटर्स, स्पेस एक्सचे मुख्य कार्यकारी अधिकारी पगार - शून्य निव्वळ मालमत्ता - १०.५ अब्ज अमेरिकन डॉलर (एप्रिल २०१५) अपत्ये - ५ मुले

इलॉन रीव्ह मस्क एफआरएस एक उद्योजक, गुंतवणूकदार आणि व्यावसायिक मॅग्नेट आहे. ते SpaceXचे संस्थापक, CEO आणि मुख्य अभियंता आहेत; प्रारंभिक टप्प्यातील गुंतवणूकदार, मुख्य कार्यकारी अधिकारी आणि टेसला, इंक.चे उत्पादन आर्किटेक्ट; बोरिंग कंपनीचे संस्थापक; आणि Neuralink आणि OpenAIचे सह-संस्थापक. एप्रिल २०२२ पर्यंत अंदाजे US$२७३ अब्ज एवढी निव्वळ संपत्ती, ब्लूमबर्ग अब्जाधीश निर्देशांक आणि फोर्ब्सच्या रिअल-टाइम अब्जाधीशांच्या यादीनुसार मस्क जगातील सर्वात श्रीमंत व्यक्ती आहे.

मस्कचा जन्म कॅनेडियन आई आणि दक्षिण आफ्रिकेच्या वडिलांच्या पोटी झाला आणि तो प्रिटोरिया, दक्षिण आफ्रिकेत वाढला. भरती टाळण्यासाठी वयाच्या १७ व्या वर्षी कॅनडाला जाण्यापूर्वी त्यांनी प्रिटोरिया विद्यापीठात थोडक्यात शिक्षण घेतले. तो क्वीन्स विद्यापीठात दाखल झाला आणि दोन वर्षांनी पेनसिल्व्हेनिया विद्यापीठात स्थानांतरित झाला, जिथे त्याने अर्थशास्त्र आणि भौतिकशास्त्रात पदवी प्राप्त केली. स्टॅनफोर्ड युनिव्हर्सिटीमध्ये जाण्यासाठी ते १९९५ मध्ये कॅलिफोर्नियाला गेले परंतु त्यांनी त्याचा भाऊ किंबल याच्यासोबत वेब सॉफ्टवेर कंपनी Zip2 सह-संस्थापक होऊन व्यवसाय कारकीर्द करण्याचा निर्णय घेतला. स्टार्टअप १९९९ मध्ये ३०७ दशलक्ष डॉलर्समध्ये कॉम्पॅकने विकत घेतले. त्याच वर्षी, मस्कने ऑनलाइन बँक X.com सह-स्थापना केली, जी २०००मध्ये कॉन्फिनिटीमध्ये विलीन होऊन पेपॅल तयार केली. ही कंपनी 2002 मध्ये eBay ने $1.5 बिलियन मध्ये विकत घेतली होती. 2002 मध्ये, मस्कने SpaceX, एक एरोस्पेस निर्माता आणि अंतराळ वाहतूक सेवा कंपनी स्थापन केली, ज्याचे ते CEO आणि मुख्य अभियंता आहेत. 2004 मध्ये, ते इलेक्ट्रिक वाहन

उत्पादक कंपनी Tesla Motors, Inc. (आता Tesla, Inc.)चे अध्यक्ष आणि उत्पादन आर्किटेक्ट म्हणून सामील झाले, 2008 मध्ये त्याचे CEO बनले. 2006 मध्ये, त्यांनी SolarCity, एक सौर ऊर्जा सेवा कंपनी तयार करण्यात मदत केली जी नंतर विकत घेतली टेस्ला आणि टेस्ला एनर्जी बनले. 2015 मध्ये, त्यांनी ओपनएआय या नानफा संशोधन कंपनीची सह-स्थापना केली जी अनुकूल कृत्रिम बुद्धिमत्तेला प्रोत्साहन देते. 2016 मध्ये, त्यांनी Neuralink ही न्यूरोटेक्नॉलॉजी कंपनी सह-स्थापना केली, ज्यामध्ये मेंदू-संगणक इंटरफेस विकसित करण्यावर लक्ष केंद्रित केले गेले आणि बोरिंग कंपनी, बोगदा बांधकाम कंपनीची स्थापना केली. मस्कने हाय-स्पीड व्हॅक्ट्रेन वाहतूक प्रणाली हायपरलूपचा प्रस्ताव दिला आहे. मस्क यांच्यावर अपरंपरागत आणि अवैज्ञानिक भूमिकांबद्दल आणि अत्यंत प्रसिद्ध झालेल्या वादग्रस्त विधानांसाठी टीका केली गेली आहे. 2018 मध्ये, यूएस सिक्युरिटीज अँड एक्सचेंज कमिशन (SEC) ने टेस्लाच्या खाजगी टेकओव्हरसाठी निधी मिळवल्याचे खोटे ट्वीट केल्याबद्दल त्याच्यावर खटला दाखल केला. तो SEC सह सेटल झाला, त्याच्या अध्यक्ष

पदावरून तात्पुरते पायउतार झाला आणि त्याच्या ट्विटर वापरावरील मर्यादांशी सहमत झाला. 2019 मध्ये, थाम लुआंग गुहेच्या बचावासाठी सल्ला देणाऱ्या ब्रिटिश गुहाने त्याच्याविरुद्ध आणलेला मानहानीचा खटला त्याने जिंकला. कोविड-19 साथीच्या रोगाबद्दल चुकीची माहिती पसरवल्याबद्दल आणि कृत्रिम बुद्धिमत्ता, क्रिप्टोकरन्सी आणि सार्वजनिक वाहतूक यासारख्या बाबींबद्दलच्या त्यांच्या इतर मतांसाठी देखील मस्कवर टीका केली गेली आहे.बालपण आणि कुटुंब संपादन

इलॉन रीव्ह मस्क यांचा जन्म 28 जून 1971 रोजी प्रिटोरिया, दक्षिण आफ्रिका येथे झाला. त्याची आई माये मस्क (née Haldeman) आहे, एक मॉडेल आणि आहारतज्ञ, कॅनडातील सास्काचेवान येथे जन्मलेली, पण ती दक्षिण आफ्रिकेत वाढलेली आहे. त्याचे वडील एरॉल मस्क हे

दक्षिण आफ्रिकेतील इलेक्ट्रोमेकॅनिकल इंजिनीअर, पायलट, खलाशी, सल्लागार आणि मालमत्ता विकासक आहेत, जे एकेकाळी टांगानिका तलावाजवळील झांबियन पन्ना खाणीचे अर्धे मालक होते. मस्कचा एक धाकटा भाऊ, किंबल (जन्म 1972), आणि एक धाकटी बहीण, टोस्का (जन्म 1974) आहे. त्याचे आजोबा, जोशुआ हॅल्डमन, अमेरिकेत जन्मलेले एक साहसी कॅनेडियन होते ज्यांनी आपल्या कुटुंबाला सिंगल-इंजिन बेलान्का विमानात आफ्रिका आणि ऑस्ट्रेलियाला विक्रमी प्रवासात नेले; आणि मस्कचे ब्रिटिश आणि पेनसिल्व्हेनिया आहेत डच वंश. मस्क लहान असताना, त्याचे एडेनोइड्स काढून टाकण्यात आले कारण डॉक्टरांना तो बहिरे असल्याचा संशय होता, परंतु त्याच्या आईने नंतर ठरवले की तो "दुसऱ्या जगात" विचार करत आहे.इलॉनच्या तारुण्यात कुटुंब खूप श्रीमंत होते; एरॉल मस्क एकदा म्हणाले होते "आमच्याकडे इतके पैसे होते की आम्ही आमची तिजोरी बंदही करू शकत नाही". 1980 मध्ये त्याच्या पालकांचा घटस्फोट झाल्यानंतर, मस्क मुख्यतः प्रिटोरिया आणि इतरत्र आपल्या वडिलांसोबत राहत होता, त्याने घटस्फोटानंतर दोन वर्षांनी निवड केली आणि त्यानंतर त्याला पश्चाताप झाला.

कस्तुरी त्याच्या वडिलांपासून दुरावला आहे, ज्यांचे त्याने वर्णन केले आहे की "एक भयंकर माणूस. जवळजवळ प्रत्येक वाईट गोष्ट ज्याचा तुम्ही विचार करू शकता, त्याने केले आहे." त्याला एक सावत्र बहीण आणि सावत्र भाऊ आहे. त्याच्या वडिलांची बाजू. एलोनने तरुणपणात अँग्लिकन संडे स्कूलमध्ये प्रवेश घेतला. वयाच्या 10च्या आसपास, मस्कने संगणकीय आणि व्हिडिओ गेममध्ये स्वारस्य विकसित केले आणि कमोडोर VIC-20 मिळवले. तो मॅन्युअल वापरून संगणक आहे." त्याला एक सावत्र बहीण आणि सावत्र भाऊ आहे. त्याच्या वडिलांची बाजू. एलोनने तरुणपणात अँग्लिकन संडे स्कूलमध्ये प्रवेश घेतला. वयाच्या 10च्या आसपास, मस्कने संगणकीय आणि व्हिडिओ गेममध्ये स्वारस्य विकसित केले आणि कमोडोर VIC-20 मिळवले. तो मॅन्युअल वापरून संगणक प्रोग्रामिंग शिकला आणि वयाच्या 12 व्या वर्षी त्याने ब्लास्टार नावाच्या बेसिक-आधारित व्हिडिओ गेमचा कोड पीसी आणि ऑफिस टेक्नॉलॉजी मासिकाला अंदाजे $500 मध्ये विकला. एक विचित्र आणि अंतर्मुख बालक, कस्तुरीला त्याच्या बालपणात त्रास देण्यात आला होता आणि मुलांच्या एका गटाने त्याला पायऱ्यांवरून खाली फेकल्यानंतर त्याला एकदा रुग्णालयात दाखल करण्यात आले होते. प्रिटोरिया बॉईज हायस्कूलमधून पदवी प्राप्त करण्यापूर्वी त्यांनी वॉटरक्लूफ हाऊस प्रिपरेटरी स्कूल आणि ब्रायनस्टन हायस्कूलमध्ये शिक्षण घेतले.शिक्षण संपादन मस्कने दक्षिण आफ्रिकेतील प्रिटोरिया बॉईज हायस्कूलमधून पदवी प्राप्त केली. कॅनडातून युनायटेड स्टेट्समध्ये

प्रवेश करणे सोपे होईल याची जाणीव, मस्कने कॅनेडियन पासपोर्टसाठी त्याच्या कॅनडात जन्मलेल्या आईमार्फत अर्ज केला. कागदपत्रांच्या प्रतीक्षेत असताना, त्याने प्रिटोरिया विद्यापीठात पाच महिने शिक्षण घेतले; यामुळे त्याला दक्षिण आफ्रिकन सैन्यात अनिवार्य सेवा टाळता आली. मस्क जून 1989 मध्ये कॅनडामध्ये आला आणि सस्काचेवानमध्ये दुसऱ्या चुलत भावासोबत एक वर्ष राहिला, शेतात आणि लाकूड-चक्कीमध्ये विचित्र नोकऱ्या करत. 1990 मध्ये, त्यांनी किंग्स्टन, ओंटारियो येथील क्वीन्स विद्यापीठात प्रवेश घेतला. दोन वर्षांनंतर, त्यांची पेनसिल्व्हेनिया विद्यापीठात बदली झाली, जिथे त्यांनी 1995 मध्ये भौतिकशास्त्रातील कला शाखेची पदवी आणि अर्थशास्त्रातील विज्ञान पदवीसह पदवी प्राप्त केली.1994 मध्ये, मस्कने उन्हाळ्यात सिलिकॉन व्हॅलीमध्ये दोन इंटर्नशिप घेतल्या: ऊर्जा स्टोरेज स्टार्टअप पिनॅकल रिसर्च इन्स्टिट्यूटमध्ये, ज्याने ऊर्जा स्टोरेजसाठी इलेक्ट्रोलाइटिक अल्ट्राकॅपॅसि टरवर संशोधन केले आणि पालो अल्टो-आधारित स्टार्टअप रॉकेट सायन्स गेममध्ये.

AIML PRESENT STATUS

श्रीधर वाघ

द्वितीय वर्ष मेकॅट्रोनिक्स

Introduction to AI and ML

Artificial Intelligence (AI) is a branch of
computer science that aims to create intelligent
systems capable of simulating human-like
cognitive functions such as problem-solving, reasoning, learning, and decision-making. AI powered machines can perform tasks that typically require human intelligence, such as understanding language, recognizing images, or making predictions.

Machine Learning (ML) is a subset of AI that
focuses on developing algorithms that allow
computers to learn from and make decisions based on data. Instead of being explicitly programmed, ML models improve their performance by identifying patterns in large datasets.

Types of Artificial Intelligence
AI can be categorized into three main types based on capability:

A. Narrow AI (Weak AI)
Specialized AI designed for a specific task.
Example:
Google Search, voice assistants, and spam filters.

B. General AI (Strong AI)
AI with human-like cognitive abilities. Can perform a wide range of tasks across different domains.
Example:
A hypothetical AI that can think, learn, and reason like a human.

C. Super AI
AI surpassing human intelligence in all aspects. Still a theoretical concept.
Example:A self-aware AI that can make decisions independently without human intervention.

तुषार इंगवले

द्वितीय वर्ष मेकॅट्रोनिक्स

Virat Kohli

Early Life & Background
• Born: November 5, 1988, in Delhi, India
• Started playing cricket at a young age
• Joined West Delhi Cricket Academy in 1998
• His father's passing in 2006 motivated him to pursue cricket with greater dedication
U-19 & International Debut
• Led India to victory in the 2008 U-19 Cricket World Cup
• ODI Debut: August 18, 2008 (vs Sri Lanka)
• T20I Debut: June 12, 2010 (vs Zimbabwe)
• Test Debut: June 20, 2011 (vs West Indies)
Rise to Stardom
• Cemented his place in the Indian team by 2011
• Played a crucial role in India's 2011 Cricket World Cup victory
• Fastest Indian to score 1,000 runs in ODIs
• First Indian to score a century on World Cup debut (2011)

Captaincy & Leadership
• Became India's Test Captain in 2014 (after MS Dhoni's retirement)
• Full-time captain in all formats (2017-2021)
• Led India to:
  - Historic Test series win in Australia (2018-19)
  - ICC World Test Championship Final (2021)
Records & Achievements
• Fastest player to reach 8,000, 9,000, 10,000, 11,000 & 12,000 ODI runs
• Holds the record for most ODI centuries (50)
• Only player to average 50+ in all three formats for a long period
• ICC Cricketer of the Decade (2010-2020)

Chhatrapati Shivaji Maharaj

सौरभ ठोमरे

द्वितीय वर्ष मेकॅट्रोनिक्स

Early Life & Background
• Born: February 19, 1630, at Shivneri Fort, Maharashtra
• Parents: Shahaji Bhosale (father) & Jijabai (mother)
• Jijabai played a crucial role in shaping his values and leadership skills
• Trained in warfare, administration, and strategy from a young age
Establishment of the Maratha Empire
• Started capturing forts at the age of 16
• Captured Torna Fort in 1645, marking the beginning of Maratha rule
• Used guerrilla warfare tactics against the Mughals and Adilshahi Sultanate
• Established Swarajya (self-rule) and
aimed for independence
Major Battles & Conquests
• Battle of Pratapgad (1659): Defeated Afzal Khan & Bijapur forces
• Battle of Kolhapur (1659): Defeated Adilshahi forces
• Battle of Purandar (1665): Treaty with Mughals after battle

escape from Aurangzeb's captivity
• Battle of Sinhagad (1670): Recaptured the fort under Tanaji Malusare's leadership
Coronation & Administration
• Coronation: Crowned as Chhatrapati at Raigad Fort in 1674
• Established a well-organized administration based on justice & equality
• Divided his empire into Swarajya, Mughal, and Adilshahi territories
• Built a strong naval force to protect the Konkan coastline
Military & Naval Power
• Developed a powerful army and navy to defend his empire
• Built sea forts like Sindhudurg and Vijaydurg for coastal defense

- Used guerrilla warfare tactics against larger enemy forces
- Maintained a disciplined and ethical military system

Legacy & Impact

- Laid the foundation of the Maratha Empire
- Inspired leaders like the Peshwas and freedom fighters
- Continues to be a symbol of bravery and leadership

Remembering Shivaji Maharaj

- Shivaji Maharaj Jayanti celebrated on February 19th every year
- Statues and memorials across India honoring his contributions
- His ideals of Swarajya and self-rule continue to inspire generations
- A true warrior king and visionary leader of India

Biomedical Robotics

अथर्व बुधवंत

द्वितीय वर्ष मेकॅट्रोनिक्स

Biomedical Robotics is an interdisciplinary field that combines robotics, engineering, and medicine to develop innovative solutions for healthcare and medical research. Here's an overview:

Applications: 1. Surgery: Robotic-assisted surgery, minimally invasive procedures, and surgical train 2. Rehabilitation: Robotic prosthetics, orthotics, and exoskeletons for physical therapy and assistive living. 3. Diagnosis: Robotic systems for medical imaging, biopsy, and tumor removal. 4. Assistive Technology: Robotic aids for people with disabilities, elderly care, and home healthcare.

Types of Biomedical Robots:

Key Technologies:
Artificial Intelligence (AI): Machine learning, computer vision, and natural
 language processing.
2. Robotics: Mechanism design, actuation, and control systems.
3. Sensors and Imaging: Force sensors,
ultrasound, MRI, and CT scans.
4. Human-Machine Interface (HMI): User interfaces, teleoperation, and haptic feedback.

Benefits:
1. Improved Accuracy: Enhanced precision and dexterity.
2. Reduced Recovery Time: Minimally
 invasive procedures and targeted therapies.

3. Increased Accessibility: Remote healthcare and assistive technologies. 4. Personalized Medicine: Tailored treatments and customized prosthetics.

Challenges:
1. Regulatory Frameworks: Ensuring safety and efficacy. 2. Cost and Accessibility: Making biomedical robots affordable and widely available. 3. User Acceptance: Addressing concerns and building trust. 4. Technical Complexity: Integrating multiple technologies and disciplines.
Future Directions:

1. Advanced Materials and Manufacturing: Developing new materials
and fabrication techniques.
2. AI and Machine Learning: Improving
robot autonomy and decision-making.
3. Human-Robot Collaboration: Enhancing user experience and interaction. 4. Personalized and Precision Medicine: Integrating biomedical robots with genomics and proteomics.

श्रावणी पवार.
द्वितीय वर्ष स्थापत्य

तो चहा !
अचानक मातीचा आलेला तो पाऊस ;
दखळणारा तो सुगंध, आणि सोबत टपरिवरचा तो
चहा ।

कधी फुरक्या मारत पिला तर कधी कटिंग म्हणून
तो चहा ।

जाणारा, ओळखलेला, थंडीत हातांची ऊब
होणारा ; तर पाऊसातल्या काही क्षणांचा साक्षीदार
तो चहा !

कधी कडक होऊन आळस घालवणारा तर कधी
औषध बनून आजारपण पळवणारा तो चहा !

सगळ्यांच्या असतात बऱ्याच आठवणी दडलेल्या
त्या एक कप चहात सुखात दुःखात आपला
जोडीदार बलतो, तो चहा

ध्येयाची वाट...... प्रत्येकाच्या आयुष्यात एक
स्वप्न असत, ते व्याला साकारायचं असतं.....

श्रुतिका जाधव.
द्वितीय वर्ष स्थापत्य

इवल्याशा वळणावरून संकटाच्या काट्यावर, चाल
धीटपणे तू स्वप्नांच्या वाटेवर...... ध्येयासाठी
सगळ सहन करायचं, पण स्वतः स्वतःच्या
आयुष्याचा शिल्पकार बनायचं..... ध्येयाच्या
वाटेत आले कितीही अपयश तरी नाही बचायचं,
स्वतः स्वतःचा सोबती होऊन स्वतःला
सावरायचं..... आयुष्यात खुप काही करराच, खूप
काही शिकायचं, सुसंस्कारांचा वारसा जपत पुढे
जायचं... दुःखाने कितीही छळले तरी मागे नाही
हटायचं, दुप्पट जिद्दीने यशाचे शिखर गाठायचं...
दिसता यशाचे शिखर जास्त हुरळून नाही जायचं,
केलेले कष्ट नाही विसरायचं, आयुष्यात खूप काही
करायचं. खूप पुढे जायचं.

Nikola Tesla

संकेत सावंत

द्वितीय वर्ष मेकॅट्रोनिक्स

Nikola Tesla (1856–1943) was a Serbian-American inventor, electrical engineer, mechanical engineer, and physicist. He is widely regarded as one of the most important and influential inventors in history. Here are some key aspects of his life and work: Early Life: Born: July 10, 1856, in Smiljan, which was part of the Austrian Empire (now in Croatia).Education: Tesla studied engineering at the Technical University of Graz and the University of Prague but never completed a degree Major Contributions: Alternating Current (AC): Tesla is best known for his development and promotion of alternating current (AC) for electrical power transmission. He worked on developing the AC induction motor and transformer, which were far more efficient for long-distance electricity transmission than the direct current (DC) system advocated by Thomas Edison Tesla Coil: He invented the Tesla Coil, a high-voltage, high-frequency transformer still used in radio technology, medical devices, and

Electronics Wireless Transmission: Tesla had visionary ideas about wireless communication and energy transmission. He famously experimented with wireless energy transfer and had plans for a global wireless communication system Radio: Though Guglielmo Marconi is often credited with inventing radio, Tesla's work laid the groundwork for the technology. He patented the method of transmitting radio waves and was later awarded the patent for radio transmission in the U.S. after a lengthy legal battle .Other Inventions: Induction motor Remote control (Tesla demonstrated a remote-controlled boat in 1898)Neon lighting Early X-ray experimentation Designs for an early version of the electric car Later Life: Tesla struggled financially throughout his life, despite his groundbreaking inventions. His ideas were often ahead of his time, and many of his projects were underfunded or dismissed by the scientific community. He spent the latter part of his life living in relative obscurity, working on various
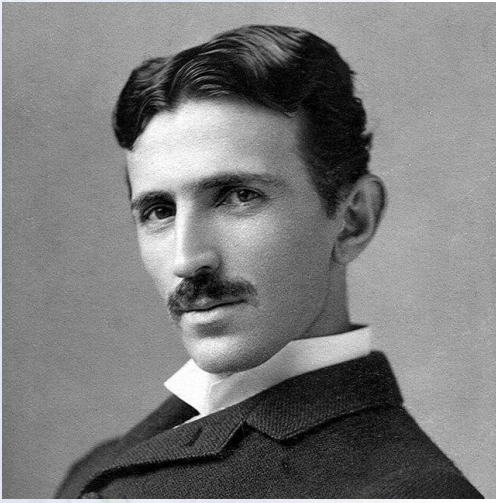
experiments, but faced financial ruin. He died on January 7, 1943, in New York City at the age of 86.Legacy:Tesla's legacy has grown significantly over time. He is now celebrated as one of the most brilliant minds in the history of science and technology His work has had a lasting impact on modern electrical engineering, telecommunications, and many other fields. Tesla's name is used today in various companies and organizations, most notably Tesla, Inc., the electric car company founded by Elon Musk. His vision of a world powered by clean, wireless energy remains an inspiration to engineers, scientists, and inventors around the world.

चित्रकला

आयुष पाटील

द्वितीय वर्ष स्थापत्य
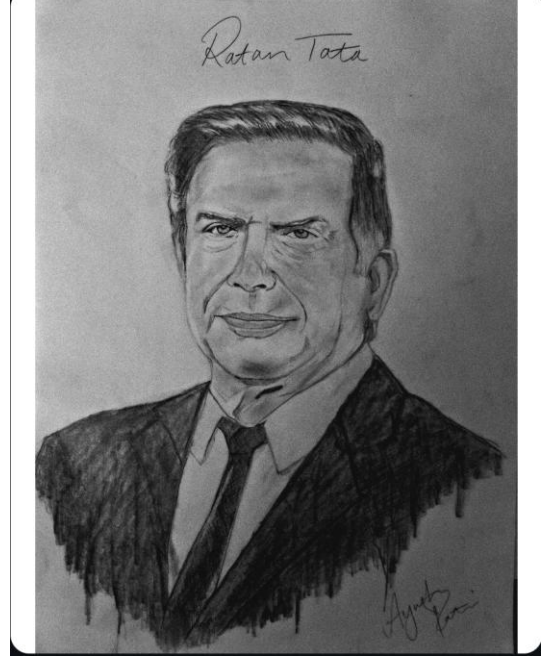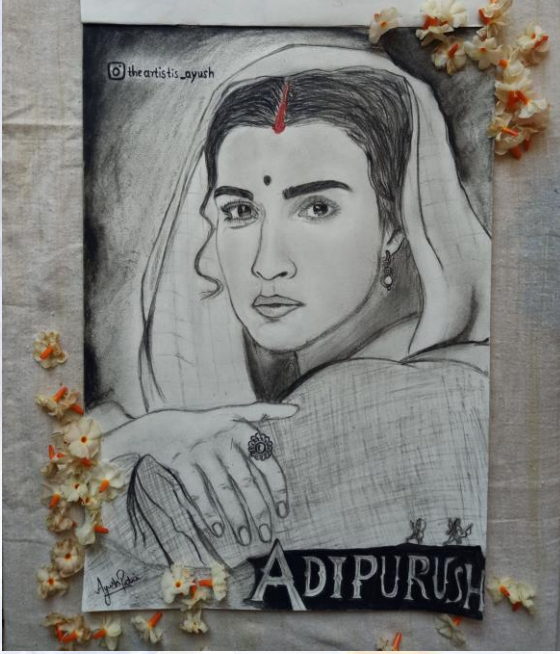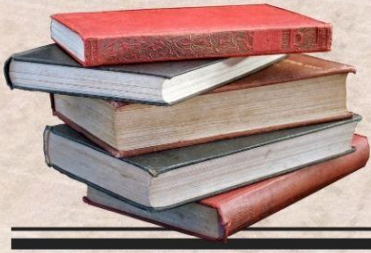
ग्रंथदिंडी

MESA तर्फे ग्रंथ दिंडीचे भव्य आयोजन! 📚

मेकॅनिकल इंजिनिअरिंग स्टुडंट असोसिएशन (MESA) तर्फे दिनांक 15 ऑक्टोबर 2024 रोजी "ग्रंथसूची (Bibliography)" हा विशेष कार्यक्रम आयोजित करण्यात आला. या उपक्रमाचा मुख्य उद्देश विद्यार्थ्यांमध्ये वाचन संस्कृती वाढवणे आणि पुस्तकांचे महत्त्व अधोरेखित करणे हा होता.

कार्यक्रमाच्या सुरुवातीला विद्यार्थ्यांनी आपण वाचलेल्या पुस्तकांचा सारांश उपस्थितांसमोर सादर केला. विविध प्रकारच्या अभियांत्रिकी, तांत्रिक, ऐतिहासिक आणि प्रेरणादायी पुस्तकांवरील अनुभव त्यांनी प्रस्तुत केले. यामुळे उपस्थित विद्यार्थी नवीन पुस्तकांविषयी अधिक जाणून घेऊ शकले आणि वाचनाची गोडी निर्माण झाली.

या चर्चेनंतर वाचन प्रेरणा देण्यासाठी ग्रंथ दिंडी काढण्यात आली. या दिंडीमध्ये विद्यार्थ्यांनी निवडलेली पुस्तके प्रदर्शित केली आणि त्यांना विद्यालयाच्या परिसरात मिरवून वाचन संस्कृतीचा प्रसार केला. संपूर्ण महाविद्यालयीन परिसर या आगळ्यावेगळ्या उपक्रमाने भारावून गेला.

📖💡 या अनोख्या उपक्रमामुळे विद्यार्थ्यांमध्ये वाचनाची गोडी वाढली आणि ज्ञानार्जनाची नवी प्रेरणा मिळाली! 🔥
MESA च्या या उपक्रमाने वाचन संस्कृतीला दिला नवा साज! 🚀📚
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मेकॅनिकल इंजिनिअरिंग स्टुडंट असोसिएशन (MESA) तर्फे 15 ऑक्टोबर 2024 रोजी अनोख्या पद्धतीने ग्रंथसूची आणि ग्रंथ दिंडी चे आयोजन करण्यात आले. विद्यार्थ्यांनी स्वतः वाचलेल्या पुस्तकांचा सारांश सादर करत वाचन संस्कृतीचा जागर केला.

MESA तर्फे ऑक्सिजन झोनचे भव्य उद्घाटन!! 🎋🌼

MESA तर्फे "ऑक्सिजन झोन" चे उद्घाटन – हरित भविष्याचा संकल्प! 🌿

MESA तर्फे "ऑक्सिजन झोन" चे भव्य उद्घाटन! पर्यावरण संरक्षणासाठी एक अनोखी पुढाकार! 🌿🌼

मेकॅनिकल इंजिनिअरिंग स्टुडंट असोसिएशन (MESA) तर्फे 27 सप्टेंबर 2024 रोजी महाविद्यालयीन कॅम्पसमध्ये "ऑक्सिजन झोन" च्या उद्घाटनाचा ऐतिहासिक क्षण साजरा करण्यात आला. स्वच्छ आणि हरित पर्यावरणाचे महत्त्व विद्यार्थ्यांमध्ये रुजवण्यासाठी तसेच परिसराचे सौंदर्य वाढवण्यासाठी हा उपक्रम राबवण्यात आला.

या उद्घाटन सोहव्यात विद्यार्थ्यांनी विविध प्रकारच्या फुलांच्या रोपांची लागवड केली. या रोपांमुळे परिसरात ताजेपणा आणि नैसर्गिक सौंदर्य वाढेल, तसेच प्रदूषण नियंत्रणात मदत होईल. हा उपक्रम केवळ पर्यावरणपूरकच नव्हे, तर विद्यार्थ्यांमध्ये निसर्गप्रेम आणि सामाजिक जबाबदारीची जाणीव निर्माण करणारा ठरला.

कार्यक्रमादरम्यान उपस्थित विद्यार्थ्यांनी पर्यावरण संरक्षणाच्या गरजेवर चर्चा केली आणि भविष्यातही असे उपक्रम सातत्याने राबवण्याचा संकल्प केला. संपूर्ण महाविद्यालय हरित उपक्रमाच्या साक्षीदार बनले आणि उपस्थितांमध्ये जबरदस्त उत्साह पाहायला मिळाला.

MESA च्या या उपक्रमाने पर्यावरण संवर्धनाच्या दिशेने एक सकारात्मक पाऊल उचलले! हा हरित संदेश संपूर्ण कॅम्पसभर गाजत राहील! 🌍💚🌸
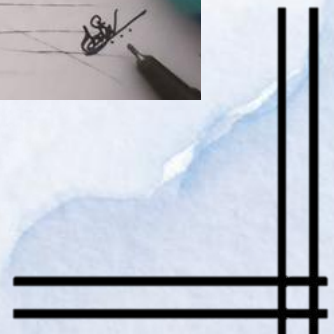
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