

Amrutvahini Sheti and Shikshan Vikas Sansth's
AMRUTVAHINI POLYTECHNIC,
SANGAMNER



TECH MEDHA
2018-19

TECH MEDHA 2018-19

AMRUTVAHINI POLYTECHNIC, SANGAMNER

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Principal's Message



Prof. V. B. Dhumal

Principal

It gives me great pleasure to know that ‘**TECH MEDHA**’, Amrutvahini Polytechnic magazine 2018-19 is ready for publication. True to its name, this magazine gives an insight into the range and scope of the imagination and creativity of our students and faculty members. I applaud the editorial team for the hard work and dedication they have invested in realizing this goal, and wish my dear students success in all future endeavors. The highly qualified and dedicated members of staff have always stood shoulder with the management and have carried out their duties with a level of commitment.

I wish the management, staff and students of the college success in their future endeavors.

Vice-Principal's Message



Prof. G. B. Kale

Vice-Principal

Providing ample opportunities in engineering education is one of the most fundamental obligations we owe to our students because in Amrutvahini Polytechnic we are driven by the belief that every student deserves a high quality education. TECH MEDHA provides an intersection of great challenge and great opportunity for the students to review their efforts and to analyze their achievements in research and development. Technology is evolving at a dizzying rate and our classrooms may not be designed to keep pace with it. There may be a lot wrong in the style of education but the pages of TECH MEDHA tell the tale of all that have been a part of what is right about the education they get in Amrutvahini Polytechnic.

I congratulate the team of students and the faculty for their tireless efforts that have come to fruition in the form of this magazine. I wish it all success and hope that this tradition that has been set by the current students will be carried through by the following generation of students to come.

EDITORS' NOTE

Dear Readers

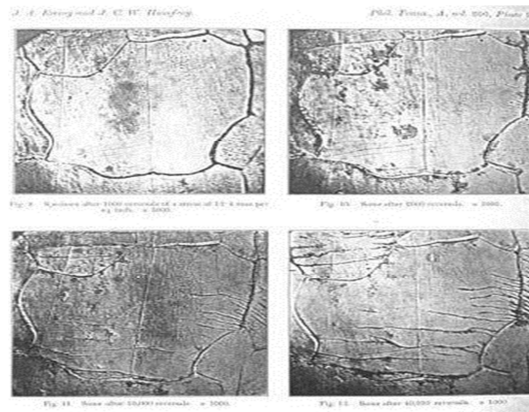
It gives us great pleasure to bring you the first issue of TECH MEDHA, the college magazine of AVP. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of a teacher is to be a facilitator in nurturing the skills and talents of students. This magazine is a platform to exhibit the literary skills and innovative ideas of teachers and students. Medha presents the achievements of students and contributions of teachers. We would like to place on record our gratitude and heartfelt thanks to all those who have contributed to make this effort a success. We profusely thank the management for giving support and encouragement and a free hand in this endeavor. Last but not the least we are thankful to all the authors who have sent their articles. We truly hope that the pages that follow will make an interesting read.

Prof. Shepal S. D.

Civil Dept.

**DESLE ROSHAN SANJAY****ME6G II SHIFT 18-19**

FATIGUE AND FRACTURE



In materials science, fatigue is the weakening of a material caused by cyclic loading those results in progressive and localized structural damage and the growth of cracks. Once a crack has initiated, each loading cycle will grow the crack a small amount, typically producing striations on some parts of the fracture surface. The crack will continue to grow until it reaches a critical size, which occurs when the stress intensity factor of the crack exceeds the fracture toughness of the material, producing rapid propagation and typically complete fracture of the structure.

Fatigue has traditionally been associated with the failure of metal components which led to the term metal fatigue. In the nineteenth century, the sudden failing of metal railway axles was thought to be caused by the metal crystallizing because of the brittle appearance of the fracture surface, but this has since been disproved. Most materials seem to experience some sort of fatigue-related failure such as composites, plastics and ceramics.

To aid in predicting the fatigue life of a component, fatigue tests are carried out using coupons to measure the rate of crack growth by applying constant amplitude cyclic loading and averaging the measured growth of a crack over thousands of cycles. However, in order to predict the fatigue life of a component, there are a number of special cases that need to be considered where the rate of crack growth obtained from these tests needs adjustment. Such as: the reduced rate of growth

that occurs for small loads near the threshold or after the application of an overload; and the increased rate of crack growth associated with short cracks or after the application of an under load.



DAPSE SHEETAL DASHRATH

ME6G REGULAR SHIFT 18-19

CONTROL SYSTEMS ENGINEERING



Control engineering or control systems engineering is an engineering discipline that applies automatic control theory to design systems with desired behaviors in control environments. The discipline of controls overlaps and is usually taught along with electrical engineering at many institutions around the world.

The practice uses sensors and detectors to measure the output performance of the process being controlled; these measurements are used to provide corrective feedback helping to achieve the desired performance. Systems designed to perform without requiring human input are called automatic control systems (such as cruise control for regulating the speed of a car). Multi-disciplinary in nature, control systems engineering activities focus on implementation of control systems mainly derived by mathematical modeling of a diverse range of systems.

Modern day control engineering is a relatively new field of study that gained significant attention during the 20th century with the advancement of technology. It can be broadly defined or classified as practical application of control theory.

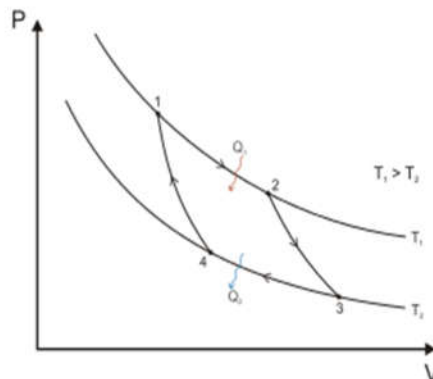
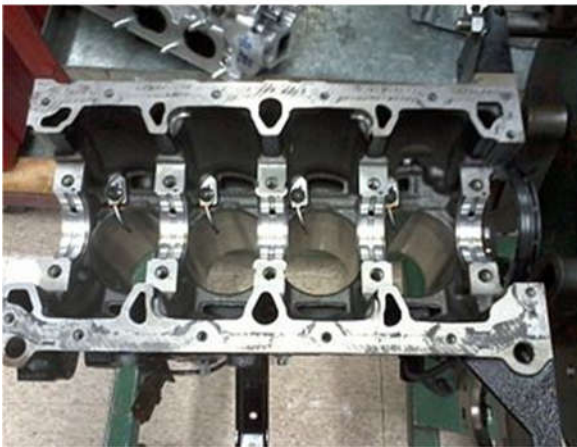
Control engineering plays an essential role in a wide range of control systems, from simple household washing machines to high-performance F-16 fighter aircraft. It seeks to understand physical systems, using mathematical modelling, in terms of inputs, outputs and various components with different behaviors; to use control system design tools to develop controllers for those systems; and to implement controllers in physical systems employing available technology.



NAWALE PAWAN RAMESH

ME6G II SHIFT 18-19

INTERNAL COMBUSTION ENGINES



An internal combustion engine (ICE) is a heat engine in which the combustion of a fuel occurs with an oxidizer (usually air) in a combustion chamber that is an integral part of the working fluid flow circuit. In an internal combustion engine, the expansion of the high-temperature and high-pressure gases produced by combustion applies direct force to some component of the engine. The force is applied typically to pistons, turbine blades, rotor or a nozzle. This force moves the component over a distance, transforming chemical energy into useful work.

The first commercially successful internal combustion engine was created by Étienne Lenoir around 1859^[1] and the first modern internal combustion engine was created in 1876 by Nikolaus Otto.

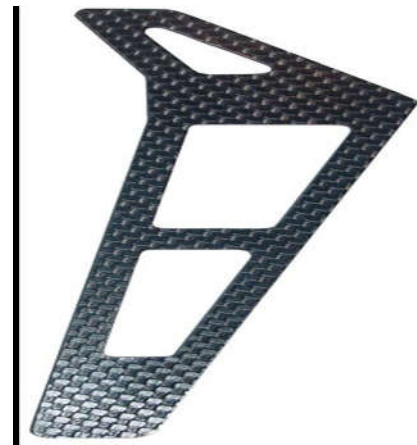
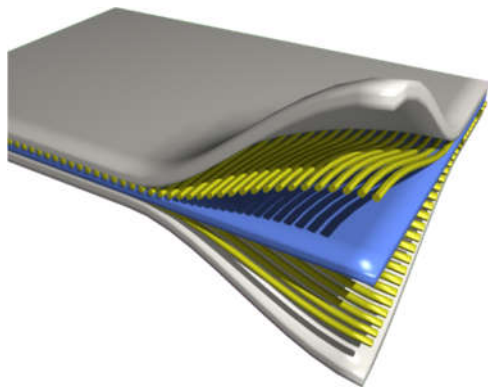
The term internal combustion engine usually refers to an engine in which combustion is intermittent, such as the more familiar four-stroke and two-stroke piston engines, along with variants, such as the six-stroke piston engine and the Wankel rotary engine. In contrast, in external combustion engines, such as steam or Stirling engines, energy is delivered to a working fluid not consisting of, mixed with, or contaminated by combustion products. Working fluids can be air, hot water, pressurized water or even liquid sodium, heated in a boiler. ICEs are usually powered by energy-dense fuels such as gasoline or diesel fuel, liquids derived from fossil fuels. While there are many stationary applications, most ICEs are used in mobile applications and are the dominant power supply for vehicles such as cars, aircraft, and boats.



LANDE MANJUSHRI ROHIDAS

ME6G REGULAR SHIFT 18-19

COMPOSITE MATERAILS



Composites are formed by combining materials together to form an overall structure with properties that differ from that of the individual components

For the specific carbon and glass fibre based composite materials often referred to loosely as 'composites', Fibre-reinforced polymer.

A composite material (also called a composition material or shortened to composite, which is the common name) is a material made from two or more constituent materials with significantly different physical or chemical properties that, when combined, produce a material with characteristics different from the individual components. The individual components remain separate and distinct within the finished structure, differentiating composites from mixtures and solid solutions. The new material may be preferred for many reasons. Common examples include materials which are stronger, lighter, or less expensive when compared to traditional materials.

Typical engineered composite materials include:

Reinforced concrete and masonry

Composite wood such as plywood

Reinforced plastics, such as fiber-reinforced polymer or fiberglass

Ceramic matrix composites (composite ceramic and metal matrices)

Metal matrix composites.



SHELKE RUSHIKESH VASANT

ME6G REGULAR SHIFT 18-19

ALTERNATIVE FUELS



Alternative fuel dispensers at a regular gasoline station in Arlington, Virginia. B20 biodiesel at the left and E85 ethanol at the right

Alternative fuels, known as non-conventional and advanced fuels, are any materials or substances that can be used as fuels, other than conventional fuels like; fossil fuels (petroleum (oil), coal, and natural gas), as well as nuclear

materials such as uranium and thorium, as well as artificial radioisotope fuels that are made in nuclear reactors.

Bio-fuels

Bio-fuels are also considered a renewable source. Although renewable energy is used mostly to generate electricity, it is often assumed that some form of renewable energy or a percentage is used to create alternative fuels. Research is ongoing into finding more suitable bio-fuel crops and improving the oil yields of these crops.

Biomass

Biomass in the energy production industry is living and recently dead biological material which can be used as fuel or for industrial production. It has become popular among coal power stations, which switch from coal to biomass in order to convert to renewable energy generation without wasting existing generating plant and infrastructure.

Algae-based fuels

Algae-based bio-fuels have been promoted in the media as a potential panacea to crude oil-based transportation problems. Algae could yield more than 2000 gallons of fuel per acre per year of production.



PROF. PHAPALE ISHWAR DEVIDAS

LECTURER IN MECHANICAL ENGINEERING

3D PRINTING



For a long time, the issue with 3D printing was that it has demanded very high entry costs, which does not allow profitable implementation to mass-manufacturers when compared to standard processes. However, recent market trends spotted have found that this is finally changing. As the market for 3D printing has shown some of the quickest growth within

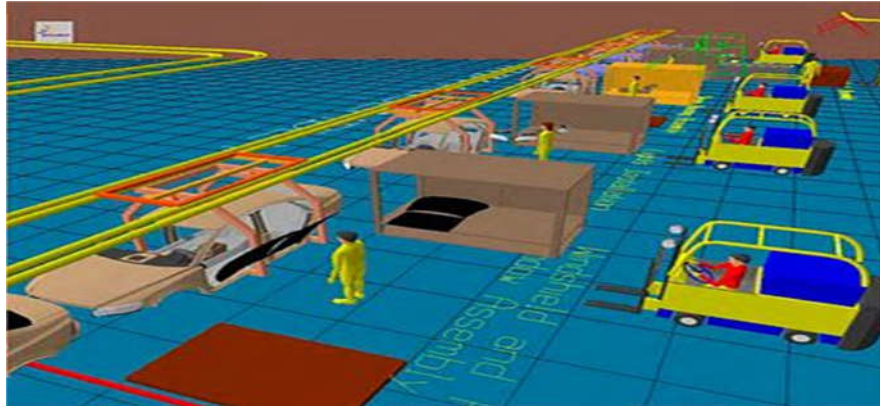
AM technologies found applications starting in the 1980s in product development, data visualization, rapid prototyping, and specialized manufacturing. Their expansion into production (job production, mass production, and distributed manufacturing) has been under development in the decades since. Industrial production roles within the metalworking industries achieved significant scale for the first time in the early 2010s. Since the start of the 21st century there has been a large growth in the sales of AM machines, and their price has dropped substantially. According to Wohlers Associates, a consultancy, the market for 3D printers and services was worth \$2.2 billion worldwide in 2012, up 29% from 2011. McKinsey predicts that additive manufacturing could have an economic impact of \$550 billion annually by 2025. There are many applications for AM technologies, including architecture, construction (AEC), industrial design, automotive, aerospace, military, engineering, dental and medical industries, biotech (human tissue replacement), fashion, footwear, jewelry, eyewear, education, geographic information systems, food, and many other fields.



PROF. SAYYED MOSHIN SHAMIR

LECTURER IN MECHANICAL ENGINEERING

COMPUTER-INTEGRATED MANUFACTURING (CIM)



Computer-integrated manufacturing (CIM) is the manufacturing approach of using computers to control entire production process. This integration allows individual processes to exchange information with each other and initiate actions. Although manufacturing can be faster and less error-prone by the integration of computers, the main advantage is the ability to create automated manufacturing processes. Typically CIM relies of closed-loop control processes, based on real-time input from sensors. It is also known as flexible design and manufacturing.

Computer-integrated manufacturing is used in automotive, aviation, space, and ship building industries.^[4] The term "computer-integrated manufacturing" is both a method of manufacturing and the name of a computer-automated system in which individual engineering, production, marketing, and support functions of a manufacturing enterprise are organized. In a CIM system functional areas such as design, analysis, planning, purchasing, cost accounting, inventory control, and distribution are linked through the computer with factory floor functions such as materials handling and management, providing direct control and monitoring of all the operations.

As a method of manufacturing, three components distinguish CIM from other manufacturing methodologies: Means for data storage, retrieval, manipulation. Algorithms for uniting the data processing component with the sensor/modification component. CIM is an example of the implementation of information and communication technologies (ICTs) in manufacturing.



PROF. PAWASKAR CHETAN DILEEP

LECTURER IN MECHANICAL ENGINEERING

ENERGY ENGINEERING



Energy engineering or energy systems engineering is a broad field of engineering dealing with energy efficiency, energy services, facility management, plant engineering, environmental compliance, sustainable energy and renewable energy technologies. Energy engineering is one of the more recent engineering disciplines to emerge. Energy engineering combines knowledge from the fields of physics, math, and chemistry with economic and environmental engineering practices. Energy engineers apply their skills to increase efficiency and further develop renewable sources of energy. The main job of energy engineers is to find the most efficient and sustainable ways to operate buildings and manufacturing processes.

Energy minimization is the purpose of this growing discipline. Often applied to building design, heavy consideration is given to HVAC, lighting, refrigeration, to both reduce energy loads and increase efficiency of current systems. Energy engineering is increasingly seen as a major step forward in meeting carbon reduction targets. Since buildings and houses consume over 40% of the United States energy, the services an energy engineer performs are in demand

Human beings have been transferring energy from one form to another since their use of fire. The efficiency of the transfer of energy is a new field. The oil crisis of 1973 and energy crisis of 1979 brought to light the need to get more work out of less energy. The United States government passed several laws in the seventies to promote increased energy efficiency, such as United States public law 94-413, the Federal Clean Car Incentive Program

**COST ANALYSIS OF CONCRETE BY PARTIAL
REPLACEMENT OF CEMENT**

Sanket Sable, Civil Department, CE SY, 2019

Introduction :

Concrete has basic naturally, cheaply and easily available ingredients as cement, sand, aggregate and water. After the water, cement is second most used material in the world. But this rapid production of cement creates two big environmental problems for which we have to find out civil engineering solutions. First environmental problem is emission of CO₂ in the production process of the cement. We know that CO₂ emission is very harmful which creates lots of environmental changes whatsoever.

Ground Granulated Blast furnace slag (GGBS) is a by product for manufacture of pig iron and obtained through rapid cooling by water or quenching molten slag. Here the molten Slag is produced which is instantaneously tapped and quenched by water. This rapid quenching of molten slag facilitates formation of "Granulated slag". Ground Granulated Blast furnace Slag (GGBS) is processed from Granulated slag. Fly ash is one of the residues created during the combustion of coal in coal-fired power plants. Fine particles rise with flue gasses and are collected with filter bags or electrostatic precipitators. Silica Fume is a finely-divided mineral admixture, available in both uncompact and compacted forms. This ultra-fine material will better fill voids between cement particles and result in a very dense concrete with higher compressive strengths and extremely low

permeability. Granulated Blast furnace slag (GGBS) is a by-product for manufacture of pig iron and obtained through rapid cooling by water or quenching molten slag. Here the molten slag is produced which is instantaneously tapped and quenched by water. This rapid quenching of molten slag facilitates formation of "Granulated slag".

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Result

Compressive strength test on cube: cube compression test was performed on standard cubes of plain size 150mm x 150mm x 150mm at 28 days of immersion in water for curing.

1. QUANTITY & COST FOR NINE (09) CUBE FOR
THE TESTING (20G:10F:10Si) ie 60% CONSTANT
CEMENT

TOTAL QUANTITY = 0.0513 M³

CEMENT IN KG = 16.77 KG

SAND IN KG = 24.65 KG

AGGREGATE IN KG = 15.93 KG(M1)

15.93 KG(M2)

TOTAL AGGREGATE = 31.86 KG

COST FOR THE SAND = 24.65 X 1.32= 32.53 Rs.

Ie 33.00 Rs

COST FOR THE AGGREGATE = $31.86 \times 1.1 = 35.046$

Rs. ie 36 Rs.

COST FOR CEMENT IN (20:10:10) CASE ie

60%constant cement.

Total weight of cement = 16.77 kg

But 60% cement = $0.6 \times 16.77 = 10.062$ kg

Globalization and its impact on English language learning

Author: Kulthe Ashok V Senior Lecturer in English.

Introduction:

Globalization is described as the process of integration of societies and economies through the cross border flow of ideas, knowledge, goods and services. As the global market is open to everyone, the advancement of knowledge and technology is taking place in every field. The New vistas of learning is attracting to everyone in every nook and corner of the world.

Change in the perception of people towards learning English in India:

People's perception about English language is fast changing. In earlier times, the education in English medium school was the commodity of the rich people only. However due to the huge progress in economy the living standard of common man in India is improved. People poor or rich wish to send their children in good English medium schools for education. Opening of several International schools in towns is a clear sign of growing demands of education in English in India. People have a strong attraction of English as the proficiency in English increases the job opportunity in private sector.

In earlier times education in English was considered as a means of enlightenment and knowledge. But now, education in English is considered as a tool for economic prosperity. In short:

- English is no longer considered as a foreign language
- English is looked as a 'global' language and 'a language of opportunity'
- Communicative aspect of English is considered more important
- English is accepted as the language of technology

It is necessary to share a few facts about English to ascertain its importance as the Global language of communication:

- About one billion people in the world use English either as their mother tongue, second language or foreign language
- Used in over 70 countries as an official or semi-official language
- Play a very significant role in 20 other countries
- 75% of the world's mail and world's information is stored in English
- Of the 50 million users of the internet a majority use English

Looking at the importance of English in the market, our education institutions have done a significant change in the curriculum of English language. More stress is given on communicative aspects of the language than merely learning its grammar. For instance the introduction of English language labs in schools and colleges is made compulsory. The training programs are widely organized for teachers of English to acquaint them about innovative methods of teaching the language. The traditional approach of teaching English with the help of printed material has taken a back seat and instead of it student centered approach is preferred and adopted everywhere in schools and colleges.

In the last two decades globalization has made greater strides in combination with technological advances like information technology. When we study the impact of either of them, the influence of one over the other cannot be ignored. Both go together.

The study of English language in this age of globalization is essential. It is the most important language of communication between different countries. It is also the epicenter of information technology. Indians now excel in the field of Information technology. The digital gadgets like tabs, mobile phones and personal computers have occupied the homes of every Indian. Besides their relevance as the tools of communication, they are widely used to learn English language. For instance the availability of digital dictionary in mobile is a handy tool of language learning.

The Indian education system is quite challenging for students since the Directorate of School Education specifies integration of Internet with language learning in the school curricula at all levels from middle to secondary. For example, even at the middle level students access resources from net and use animation and graphics for completing their project work. It is common even

among middle school children to possess an email address through which they communicate their friends.

In the case of college students, 'surfing the net' for doing academic work is often considered a necessity as the resources provided by internet serves as an additional input to them. This has made students a responsible learner offering them greater scope for learner autonomy by means of e-learning. This has enhanced their performance in the classroom too.

The Directorate of Technical Education has asserted the importance of learning English for students taking education in various Engineering disciplines. The weight age to English subject is increased in curriculum. Several workshops are organized for engineering faculty to equip them with excellent communication skills in English. Full time English faculty is appointed in Engineering and Diploma institutes for the benefit of students.

Internet and Language Teaching:



The role of Internet in education system is continuously evolving and increasing. Teacher is no longer looked a sole recourse of learning English. In his place Technology in the form of Internet, CD ROM, Interactive Software and Online tutorial is widely used. The learning by means of these recourses is an enjoyable and rewarding experience.

Some websites on net provide free access to users for tutorials on topics like vocabulary, grammar and pronunciations. The tests designed are interesting and give immediate feedback to the learner about his performance.

In the earlier approach of language teaching maximum stress was given to the retention of the meaning of words and mugging the rules of grammar. This has been changed considerably with the inception of information technology. Now, more enjoyable and friendly approach in the form learning by means of animation and graphics is popular among children.

At the college level teachers often encourage their students to do online communication exercise and listen to audio files found on the net relating to their topics. There is a great awareness among engineering students about acquiring excellent communication skills in English to secure challenging jobs in multi-national companies. They aspire to go abroad for higher education. Many education institutes have collaboration with overseas universities. Some institutes like NIIT have signed agreement with Language Testing Systems such as TOEIC (Test of English for International Communication), TOFEL and Criterion online writing evaluation service in India. Similarly, many universities have signed agreement with the British Council for conducting the Business English Certification test to students of affiliated colleges. The aspirants undergo training within their institutes in handling tasks in GMAT, TOFEL, and IELTS with the help of the Internet.

Increased Job opportunities for expert teachers of English:

The teachers who excel in teaching of English have a lot of job opportunities. They are hired with big packages in reputed International Schools. Experienced teacher are working as ELT consultants and trainers in various Training Institutes to deliver language training to students.

In BPO's (Business Process Outsourcing) and Call Centers for handling overseas customers the employees need strong communication abilities. The induction program is given to the new staff to enhance their communication skills, correct accent, pronunciation and business vocabulary. It is mandatory to pass the test to secure job prospects. Expert teachers work out the tests taking in account the challenges of learners.



Due to globalization many IT companies as well as MNC's established in India and opened vast job opportunities to English knowing graduates. This has made a phenomenal change in the education system of India.

Vehicle Tracking System Using GPS

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Vehicle Tracking, system combines the use of automatic vehicle location in individual vehicles with software that collects these fleet data for a comprehensive picture of vehicle locations. Modern vehicle tracking systems commonly use GPS or GLONASS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software. Urban public transit authorities are an increasingly common user of vehicle tracking systems, particularly in large cities.

Vehicle tracking systems are commonly used by fleet operators for fleet management functions such as fleet tracking, routing, dispatching, on-board information and security. Some vehicle tracking systems are bundled with or interface with fleet management software. Along with commercial fleet operators, urban transit agencies use the technology for a number of purposes, including monitoring schedule adherence of buses in service, triggering automatic changes of buses' destination sign displays once the vehicle approaches the bus terminus (or other set location along a bus route such as a particular bus stop along the route), and triggering pre-recorded (or even synthetic speech) bus stop, route (and its destination) or service announcements for passengers. This paper gives an overview of the current state of Vehicle Tracking Systems and describes the advantages and disadvantages of Vehicle Tracking System. Such programs are also used to provide customers with real-time information as to the waiting time until arrival of the next bus or tram/streetcar at a given stop, based on the nearest vehicles' actual progress at the time, rather than merely giving information as to the scheduled time of the next arrival. Transit systems providing this kind of information assign a unique number to each stop, and waiting passengers can obtain information by entering the stop number into an automated telephone system or an application on the transit system's website.

Vehicle Tracking Uses Component Fields Of Study In: Asset Tracking, Field Service Management, Trailer Tracking and Surveillance, Cold Storage Monitoring, GPS Wildlife Tracking.

Application Areas of Vehicle Tracking :

Vehicle Tracking is a One of the most promising tool that can provide the physical location and movement status of the vehicle, Logistics and Cargo companies use Vehicle tracking system, , etc

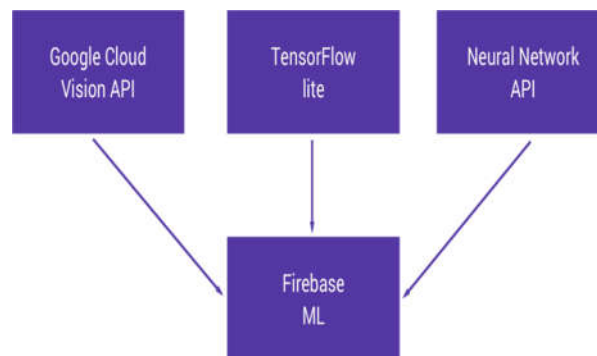
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Exploring Firebase MLKit on Android

**Amol Dagu Shelkar, Lecturer, Department of Computer Technology,
Amrutvahini Polytechnic, Sangamner.**

Now, what Firebase ML Kit offers to us is already possible to implement yourself using various machine-learning technologies. The thing with Firebase ML is that as well as offering these capabilities underneath a form of wrapper, it also takes these technologies and offers their capabilities inside of a single SDK.



Whilst we can implement these things without Firebase ML, some reasons why we may not be able to do so may be due to:

- Lack of machine learning knowledge may hold us back from being able to implement such features — maybe we find it overwhelming or just don't have the time to be able to ramp up in these areas
- Finding machine learning models that are super accurate and well trained can be not only difficult, but at the same time hard to choose which ones to use and then optimize for your platform.
- Hosting your ML model for cloud access may also be something to bring difficult to your ML implementation. Packaging it within your app can sometimes be a more straightforward approach, but that itself comes with some drawbacks.

With these in mind, it can be difficult to know where to start. This is one of the main goals of Firebase ML Kit — to make Machine Learning to our Android and iOS applications more accessible to developers and available in more apps. Currently ML Kit offers the ability to:

- Recognize text
- Recognize landmarks
- Face recognition
- Scan barcodes
- Label images

To be able to utilize these features all we need to do is pass our desired data to the SDK and in return we will receive the data back dependent on what part of ML Kit we are using. The data returned will be dependent on the machine learning capability being used; you will just need to extract the data from the response that is returned to you.

And if one of these above does not satisfy your machine learning requirements, Firebase MLKit offers the ability for you to upload your own custom tensor flow lite models so that you don't need to worry about the hosting of these models or the serving of them to your users devices.

One of the nice things about Firebase ML is that it offers its machine learning abilities both on the device and on the cloud; this allows you to be creative and mindful of how and when you use machine learning.

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Soft Computing
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Soft computing, as opposed to traditional computing, deals with approximate models and gives solutions to complex real-life problems. Unlike hard computing, soft computing is tolerant of imprecision, uncertainty, partial truth, and approximations. In effect, the role model for soft computing is the human mind. Soft computing is based on techniques such as fuzzy logic, genetic algorithms, artificial neural networks, machine learning, and expert systems. Although soft computing theory and techniques were first introduced in 1980s, it has now become a major research and study area in automatic control engineering. The techniques of soft computing are nowadays being used successfully in many domestic, commercial, and industrial applications. With the advent of the low-cost and very high performance digital processors and the reduction of the cost of memory chips it is clear that the techniques and application areas of soft computing will continue to expand. This paper gives an overview of the current state of soft computing

techniques and describes the advantages and disadvantages of soft computing compared to traditional hard computing techniques. Soft computing is the use of approximate calculations to provide imprecise but usable solutions to complex computational problems. The approach enables solutions for problems that may be either unsolvable or just too time-consuming to solve with current hardware. Soft computing is sometimes referred to as computational intelligence.

Soft computing uses component fields of study in: Fuzzy logic,, Machine learning, Probabilistic reasoning, Evolutionary computation, Perceptron Genetic algorithms, Differential algorithms.

Application Areas of Soft Computing

Soft computing is a promising tool that can provide problem resolution methods, optimization approximation methods including search methods. Soft computing techniques are used in different fields such as Wireless Communication, Data Mining, Communication System, Transportation, Healthcare, Robotics, Consumer Appliances etc

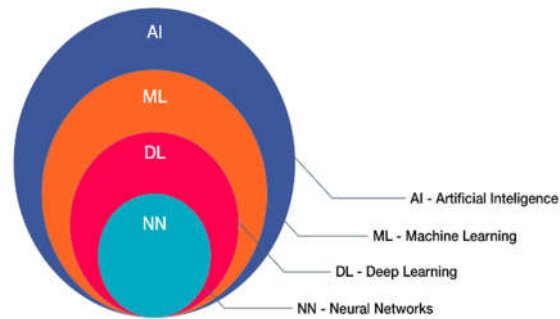
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2. Jang JSR, Sun CT, and Mizutani E. Neuro-Fuzzy and Soft Computing, A Computational Approach to Learning and Machine Intelligence. Upper Saddle River, NJ: Prentice-Hall; 1997.
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Artificial Intelligence

The modern definition of artificial intelligence (or AI) is "the study and design of intelligent agents" where an intelligent agent is a system that perceives its environment and takes actions which maximizes its chances of success.

Like humans, AI systems aren't born perfect. They have to learn and adapt, and all of that is done just like how humans learn and adapt: by taking in information, or data, processing it, and storing it for future reference. It's like when a young kid touches a hot stove. Their brain registers the pain and makes note to not do it again. AI isn't much different.



Digging in deeper, AI itself is actually the largest and outermost circle in a series of four concentric circles. The next circle nested within AI is ML, or Machine Learning. ML is, unsurprisingly, the learning part of AI, but ML is itself reliant on the next circle within it, or Deep Learning (DL). But it doesn't stop there, the fourth and innermost circle, and the one that every other circle is counting on, is the idea of Neural Networks

Neural Networks:

Artificial neural networks (ANN) or connectionist systems are computing systems vaguely inspired by the biological neural networks that constitute animal brains. Such systems "learn" to perform tasks by considering examples, generally without being programmed with task-specific rules.

An ANN is based on a collection of connected units or nodes called artificial neurons, which loosely model the neurons in a biological brain. Each connection, like the synapses in a biological brain, can transmit a signal to other neurons. An artificial neuron that receives a signal then processes it and can signal neurons connected to it.

Deep Learning:

Deep learning is an artificial intelligence function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of machine learning in artificial intelligence (AI) that has networks capable of learning unsupervised from data that is unstructured or unlabeled. Also known as deep neural learning or deep neural network

Machine Learning:

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

The process of learning begins with observations or data, such as examples, direct experience, or instruction, in order to look for patterns in data and make better decisions in the future based on the examples that we provide. The primary aim is to allow the computers learn automatically without human intervention or assistance and adjust actions accordingly.

Artificial Intelligence:

Artificial Intelligence (AI), or machine intelligence, is the field developing computers and robots capable of parsing data contextually to provide requested information, supply analysis, or trigger events based on findings. Through techniques like machine learning and neural networks, companies globally are investing in teaching machines to 'think' more like humans.

References:

www.Medium.com

Londhe Swapnil K.

2nd Year,

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Android App Bundle

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In Google IO '18, Google has introduced a new publishing format (aab) called Android App Bundle. It's new publishing format for the Android application. The Android App Bundle helps you to reduce the APK size of your application when your application is targeting different screen densities, CPU architectures and languages. Overall, Android app bundle means smaller application size and more downloads of your application

- Android App Bundle provides the following advantages:
- Equals/Smaller than traditional APKs => Smaller size downloads to your users => more downloads :)
- Single build artifact makes easy to manage from Google play console.

- Dynamic Delivery: Install the application as per user needs.

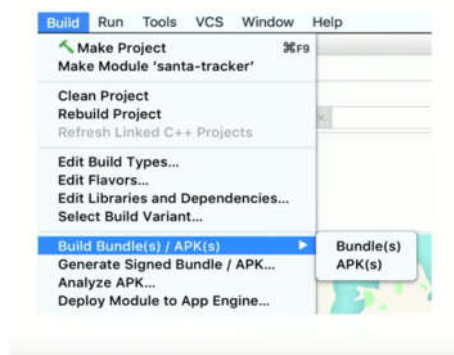
What is android app bundle?

It has the same format as like apk file, consider it as zip bundle which contains all code, resources and configurations. App bundle is not directly installable and contains metadata/configuration files which help to build optimized apks for users

How to build Android App bundle?

There are two ways to generate the app bundle

1. Using Android Studio



From Command line

```
./gradlew bundleDebug  
./gradlew bundle
```

for both ways, the app bundle will be available at:

```
/build/outputs/bundleVariant/you_app_bundle.aab
```

Publishing the Android App Bundle

You must enroll in App signing by Google Play program, Google launched this program last year at IO'17. Otherwise, you can't upload your app bundle to the Play Console. Play console will sign the generated apk before sending it to the user. Once you've uploaded the app bundle, play console will do all background work and generate all possible apks. You can explore your app bundle using Bundle Explorer tab on the Play console web portal.

Test your App bundle

There are two ways:

1. Using Internal Test track/channel on Play Console, it may be useful during Q&A or internal testing.
2. Using BundleTool, during the development phase. Please check the all possible solutions to install the apk from app bundle.

Reference:

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Machine Learning

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Machine Learning, is a subfield of Artificial Intelligence (AI). The goal of machine learning generally is to understand the structure of data and fit that data into models that can be understood and utilized by people. Although machine learning is a field within computer science, it differs from traditional computational approaches. In traditional computing, algorithms are sets of explicitly programmed instructions used by computers to calculate or problem solve. Machine learning algorithms instead allow for computers to train on data inputs and use statistical analysis in order to output values that fall within a specific range. Because of this, machine learning facilitates computers in building models from sample data in order to automate decision-making processes based on data inputs. Although Machine Learning theory and techniques were first introduced in 1959s, today it has benefitted from machine learning. Facial recognition technology allows social media platforms to help users tag and share photos of friends. Optical character recognition (OCR) technology converts images of text into movable type. Recommendation engines, powered by machine learning, suggest what movies or television shows to watch next based on user preferences. Self-driving cars that rely on machine learning to navigate may soon be available to consumers it is clear that the techniques and application areas of Machine Learning will continue to expand. This paper gives an overview of the current state of Machine Learning techniques and describes the advantages and disadvantages of Machine Learning. In machine learning, tasks are generally classified into broad categories. These categories are based on how learning is received or how feedback on the learning is given to the system developed. Two of the most widely adopted machine learning methods are supervised learning which trains algorithms based on example input and output data that is labeled by humans, and unsupervised learning which provides the algorithm with no labeled data in order to allow it to find structure within its input data.

Machine Learning Uses Component Fields Of Study In : Neural Networks, Machine Learning Algorithms, Artificial Intelligence , Affective Computing , Computational Statistics , Mathematical Optimisation.

Application Areas of Machine Learning Machine Learning is a One of the most promising tool that can provide Image Recognition Methods, Translation Of Spoken Words Into Text Using Speech Recognition. Machine Learning Techniques are used in different fields such as Virtual Personal Assistant , Data Mining, Online Fraud Detection , Medical Diagnosis, Robotics, Email Spam , Hybrid Intelligence System, Automated Reasoning, etc

Reference

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4. Friedman, Jerome H. (1998)."Data Mining and Statistics: What's the connection?". Computing Science and Statistics.