MECHON'16

MECHANICAL ENGINEERING MAGAZINE

MIET ENGINEERING COLLEGE

VOLUME 1

ISSUE 1

MIET
Mohamed Institute of Education & Technology
INSTITUTIONS
Since 1984

MIET ENGINEERING COLLEGE

MECHANICAL MAGAZINE - MECHON '2016

VOLUME NO: 1
ISSUE NO: 1

Er. A. Mohamed Yunus

Chairman

M.I.E.T. Institutions

CHAIRMAN MESSAGE:

It had always been my dream to build an institution for quality, innovation and excellence that can yield success. M.I.E.T. institution was established with a primary motive of providing quality education to the budding youth under privileged as well as the minority community which in turn would translate into service to the humanity in general and to the society in particular.

M.I.E.Tedifythepupiltodreamandrealizethe professional growth in a congenial environment with versatile faculty and facilities while enlightening them with values and characters to attain social, economical and technological growth at global level. Students must strive and create a platform to get a career not just for survival but also to excel in the field. Today is the eraofprivatizationandglobalizationandwetryto groom, nourish and nurture our students to fully equipped pillars of the Nation. My best wishes and blessing to all for the futureendeavors.

Dr. S. Guharaja

Principal

M.I.E.T. Engineering College

PRINCIPAL MESSAGE:

It is a matter of abiding joy in witnessing a gradual success of our college by tapping the latent potential and talent dormant in the students. We know that quality education is a passport to its steep rise in life and creates a platform for practical avenues.

They pursue their creative interests to attain financial gains and get golden opportunities to lead a life of dignity and prosperity. M.I.E.T Engineering College has efficient faculty members who are endeavored towards framing young and dynamic engineers who will crux of the technical workforce. Best wishes.

Mrs. S. Roseline

HOD

Department of Mechanical Engineering

HEAD OF THE DEPARTMENT MESSAGE:

I am pleased to know that the successful completion of the magazine MECHON for this academicyear2016-17.MECHON,thedepartmental magazine has the prime objective of providing aspiring engineers a wide platform to showcase their technical knowledge and to pen down innovative ideas. This magazine is intended to bring out the hiddenliterarytalentsinthestudentsandteachersto inculcate strong technical skills among them. I congratulate and thank all the students and faculty coordinator who have made untiring efforts to bring out this magazine. I wish them all the very best for releasing more such magazines infuture.

VISION OF THE INSTITUTION

To be a center of excellence in Technical Education through Technical, Ethical and Professional skills for meeting the diverse needs of the Society, in particular Muslim minority community and the Nation.

MISSION OF THE INSTITUTION

To impart Quality Education,Training and Research in the fields of Engineering and Technology.

To provide a conducive learning environment that enables the students to achieve professional and personal growth.

To expose the contemporary issues of society, ethical practices and to create environmental awareness.

To provide the required infrastructural facilities for developing the professional and innovative skills.

VISION OF THE DEPARTMENT

Establish a globally recognized school of Excellence in the field of Mechanical engineering.

MISSION OF THE DEPARTMENT

Impart quality education in Mechanical Engineering through effective teaching-learning techniques.

Provide necessary infrastructure and facilities for the student’s personal and professional growth.

Expose to specialized mechanical engineering domains to harness evolving technologies.

Create awareness in ethical practices followed internationally.

DEPARTMENT PROGRAMS

WORKSHOP

WORKSHOP ON AUTODESK INVENTOR SOFTWARE

Two-week workshop on “Auto Desk Inventor Version 2016 Software” was inaugurated in the presence of the Head of the department Mrs. S. Roseline and Prof. S. Dhakshinamoorthy and Mr. L.S. Narendhira. The event was organized by Dr.S.RenoldElsenAsst.Prof(E-LearningClubcoordinator)andMr.K.Dhamodaran, Asst. Prof (E-Learning Club Asst. coordinator) under the E-Learning club activity for our departmentstudents.

More than 35 students were participated in this event after evening 5.15-6.30 pm to learn about the basic 2D drafting, 3D modeling and Assembly of 3D modeling in detail.

E-Learning Workshop

AUTODESK FUSION 360 & DESIGN NOW COMPETITION

AUTODESK-FUSION360WorkshopPhaseI,wasorganizedinourcollegein association with AUTODESK and more than 85 students participated in the event. Mrs. Madhumitha, Trainer, support trained the studentseffectively.

The event conducted by Dr. S. RenoldElsen, Assistant Professor, (Co-coordinator E Learning CLUB) and K. Dhamodaran, Assistant Professor, (Asst . Co-Ordinator E Learning CLUB) held on 29th and 30th Aug 2016.

In success of AUTODESK-FUSION 360 Workshop Phase I, Phase II held on 26th and 27th Sep 2016 which was trained by Mr. T. Karthikeyan, Trainer, AUTODESK support.

The program was a grand success in which 5 winners were selected and the prizesaredistributedbyMrs.SABERIDASGUPTA(ChiefGuest),ArvatoIndiaatthe valedictory function on 31st OCT2016.

STUDENTS ARTICLES

1. Flush free Toilet for conservation ofwater

Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewages or waste water. Hazards can be physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems include human and ani mal excreta, solid wastes, domestic waste water, industrial wastes and agricultural wastes. Hygienic means of prevention can be using engineering solutions, simple technologies or even simply by behavior changes in personal hygienic practices, such providing sanitation to people requires a system approach,ratherthanonlyfocusingonthetoiletorwastewatertreatmentplantitself. The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle ofdiseases.

Waterplaysavitalinourdaytodaylife.Themainobjectiveofthetoiletdesign is to use in rural areas and water scarcity areas. In normal toilet nearly five to ten liters of water is used for single flush. So, we planned to save the water and going to use the waste as fertilizer. In this project we can show a difference when compared to other type of toilet. The main objective is to utilize the water used in flushing for some other efficient purpose. To develop a low cost still efficient toilet forthehelplessbrothersandsistersofourIndiannation.Toreducetheodorcreated after the usage of the toilet. To develop a better replacement for mobile toiletwhere sustainability of water supply and sanitation services is highlyremote.

By

Arun A, Aspin raj A, Balasubramanian P, Cijo M

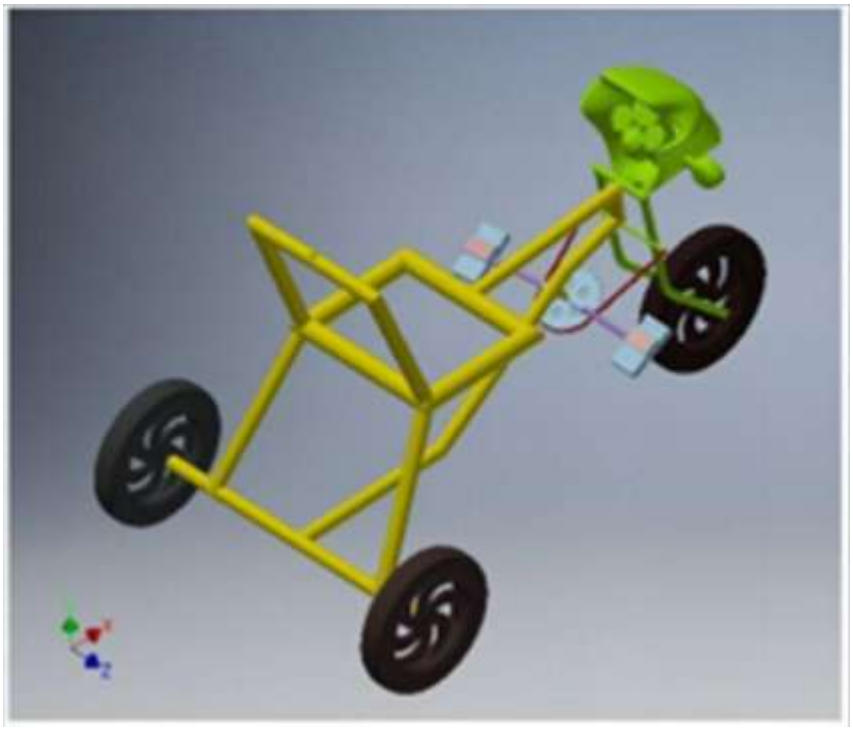
2. Safety vehicle for people with forelimbdisability

According to the census of 2001, in India the population of physically challenged people was about 21,909,769 which are about 2.1 percent of the total population out ot which 12.6 million are males and 9.3 million are females. In this the people who have disability in movement makes up to 6,105,447 which is about 0.6%ofthetotalpopulation.Peoplewithdisabilityintheirlegscandriveaphysically challenged vehicle designed with dummy rearaxle.

It is not possible for a person with disability in their hands to drive such a vehicleasthevehicle'scontrolsystemispresentinthehands.Forahanddisabled person driving a vehicle is possible by legs will be possible if the entire vehicle's controlistransferredtolegs.Theleg-operatedvehicleisfabricatedbyusingsimple mechanisms for steering, acceleration and braking which will enable the person to drive the vehicle. In present scenario, the transportation is one of the major requirements of the people for transportation of goods or self from one place to a differentplace.

For a physically disabled or a debilitated person, transportation is a major hindrance and so the mobility of physically disabled people is among the great concern of the human civilization. It is really very hard to realize the problems and sorrows of a physically disabled or debilitated person who is dependent on others or is confined on a wheel chair with a limited mobility. In India, the contemporarily modified scooters used by the physically disabled people for transportation are not ergonomic and do not provide protection from adverse weather conditions which can be more dangerous for physically disabled people compared to the normal person while driving.

It is very risky and uncomfortable to drive such modified scooters during the rain or in other adverse weather conditions.



3D view of vehicle

By

Mohamed Tharik N, Navaneethan T, Pradeep J, Premnath S

3. Design and fabrication of wheel assembly of green car for disabledpeople

Car for Disabled People offered comprise designing of hand-controlled cars that are perfectly suitable for driving by handicapped persons. Being suitable for physically challenged as well as disabled people, these specially designed cars can be expensively customized and converted to suit specific disability of a person. Further, we can also modify hybrid car versions as demanded by customers based across India. These personalized conversions/changes provided in the automobile allow people to drive these with support of his/her hands or using only one limb.

Todesignandfabricatingtheautomobileswheelassemblyofcomponents(like rim, hub) of a hybrid car which means dual source of electric and solar power with storage capabilities with existing product of using Bajaj RE60 Auto rickshaw wheel instead of using electric vehicle wheels. The wheel assembly is the important unit of the car for driving and travelling one place to anotherplace.

In the car, Wheel assembly carries or withstands total weight of the car which includes lateral force and linear force. Without wheel assembly in automobile, it isnot carrying loads and travel on the road side. If any damage occurs in the wheel assembly,itresultsdangerousinjuriestothedriverandtravelers.Thisprojectfocused on cost reduction for massproduction.

By

Mohamed Rafick S, Mohamed Salih A, Mohamed Kassim M R,

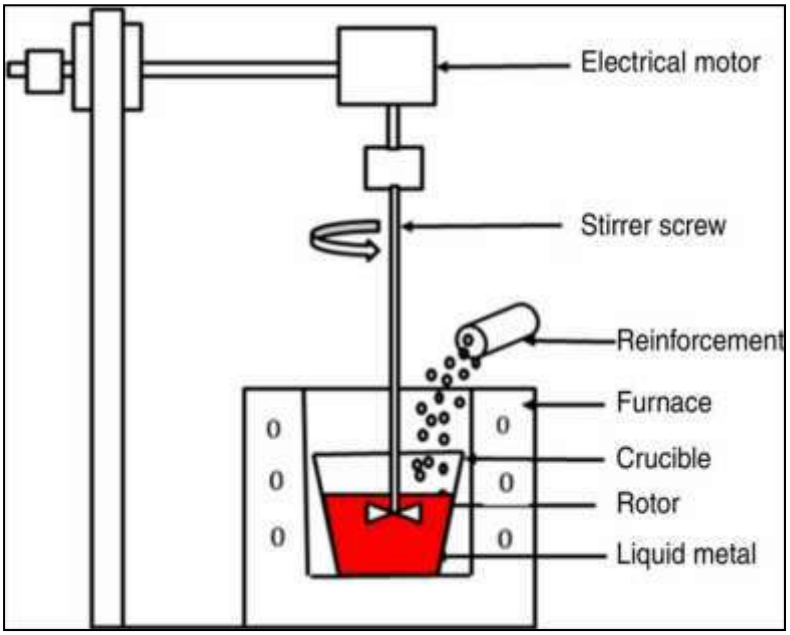
Mohamed Anwar H

4. Optimization of milling process parameters of stir casted Aluminium Metal Matrix Composite byRSM

Castingisamanufacturingprocessinwhichaliquidmaterialisusuallypoured intoamold,whichcontainsahollowcavityofthedesiredshape,andthenallowedto solidify. The solidified part is also known as a casting, which is ejected or brokenout of the mold to complete the process. Casting materials are usually metals or various cold setting materials that cure after mixing two or more components together;examplesareepoxy,concrete,plasterandclay.Castingismostoftenused formakingcomplexshapesthatwouldbeotherwisedifficultoruneconomicaltomake by othermethods.

Millingisaprocessofproducingflatandcomplexshapeswiththeuseofmulti- tooth cutting tool, which is called a milling cutter and the cutting edges are called teeth. The axis of rotation of the cutting tool is perpendicular to the direction of feed, either parallel or perpendicular to the machined surface. The machine tool that traditionally performs this operation is a milling machine. Milling is an interrupted cutting operation: the teeth of the milling cutter enter and exit the work during each revolution.Thisinterruptedcuttingactionsubjectstheteethtoacycleofimpactforce and thermal shock on every rotation. Cutting fluids are essential for most milling operations. Modern manufacturing firms aim to attain quality, dimensional precision, increased production rate, minimal tool wear, economy and mainly surface roughness.Millingisbecominganessentialmaterialremovaltechniquecanbeused for optimizing surface roughness of the composites for micro level and economic performance. Alumina reinforced Aluminium Metal Matrix Composites (AAMMC) developedbythestircastingmethodgivesgoodmechanicalpropertiesandwhichis also used in many automotive, aerospace and industrialapplications.

This work focuses on the effect of end milling machining process parameters such as cutting speed, feed rate, depth of cut on machining of stir casted AAMMC. AluminacontentofAluminiummatrixisusedforthisresearch work, it was found that AAMMCs provide higher strength to weight ratio, wear resistance and hardness properties. Optimal levels and important end milling machining parameters were obtained using ANOVA and response surface methodology. The optimal values of surface roughness and the machining time were obtained at Cutting Speed of 1750 rev/min with a feed rate of 0.3 mm/rev and depth of cut 0.2mm. The predicted and measured values were interrelated with each other. These results determined that the model obtained using response surface methodology is utilized to analyse the Surface Roughness S.R and the Machining Time M.T of milling machining ofAAMMC.



Stir casting method

By

Mohamed Hasib R, Mohamed Ismail M, Mohamed Nihamathullah A N, Mohamed Faheem Riluwan P A

FACULTY ARTICLES

1. Quarter valve system for Gasoline and dieselengines

Summary:

It’s to make the head of the Cylinder head movable Fig, and, in this case we have the wizard Cylinder head which give the exhaust gas the high capability of escaping with four holes of the entire valves situated on top of the Cylinder head(2), and for the admission of the air it’s replaced with entire moving of the roof of the Cylinder head (3) as one big valve of enhanced admission of the air, this valve when it open it have the four holes of the places of escapement valves with the outline of the entire big valve which constitute the top of the cylinder.

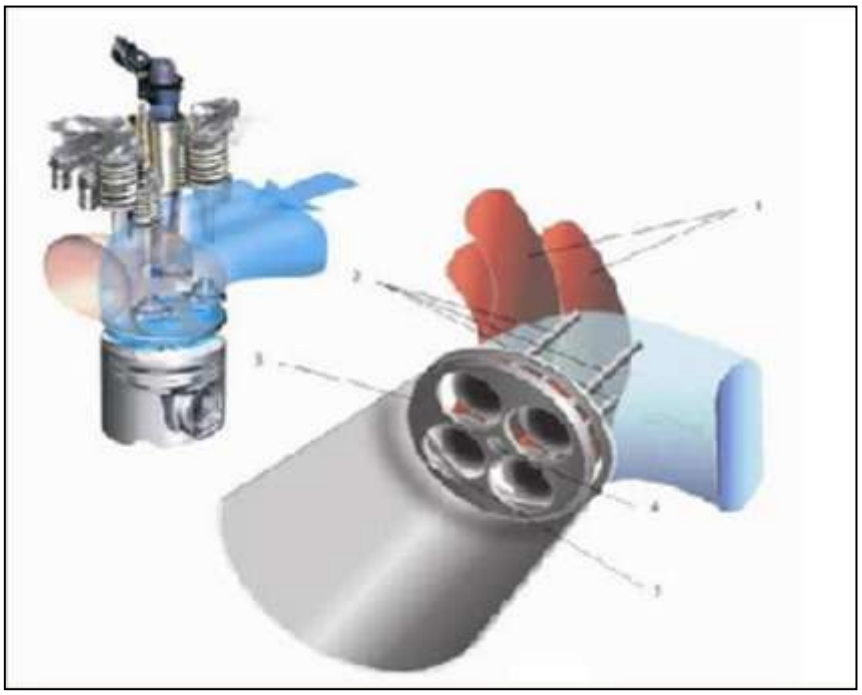
Full Description:

This system made the engine breath more air by enhancing the entry of admission (see the photo below), so the old Cylinder head have an handicap, it’s about the non-capability of making more than two hole for the admission in the top of the Cylinder head, because of the necessity of the holes of the exhaust escapement, then the engineers made several ways in order to perform the breath of the engine, such the Turbo or making two holes for admission and two for exhaust escapement, etc. Now with this creation, we can make more than the two classical valves of air admission. It’s to make the head of the Cylinder head movable and, in this case we have the wizard Cylinder head which give the exhaust gas the high capability of escaping with four holes of the entire valves situated on top of the Cylinder head(2), and for the admission of the air it’s replaced with entire moving of the roof of the Cylinder head.

(3) as one big valve of enhanced admission of the air, this valve when it open it have the four holes of the places of escapement valves with the outline of the entire big valve which constitute the top of the cylinder. Now with this creation, we can make more than the two classical valves of air admission. It's to make the head of the Cylinder head movable and, in this case we have the wizard Cylinder head which give the exhaust gas the high capability of escaping with four holes of the entire valves situated on top of the Cylinder head(2), and for the admission of the air it's replaced with entire moving of the roof of the Cylinder head (3) as one big valve of enhanced admission of the air, this valve when it open it have the four holes of the places of escapement valves with the outline of the entire big valve which constitute the top of the cylinder. The admission of the air is faster, and the escapement of exhaust is definitive.

Because it makes the air enter very quickly and with massive volume, then the case in classical motors. With this new system of quartet valves that moves simultaneously, we can manufacture an engine more powerful without a turbo charger and its complexity, and we have more power and torque, as do with motor equipped with turbo, so let imagine if this new system is enhanced with the Turbo, it made the Diesel engine or the others more powered by the air and we can also made it more economic then the classical one.

Then we have a new system of breath. The four valves move simultaneously for escapement. One big valve with four holes for admission, it constitutes the roof of the cylinder. More power is available without needs of the turbo. In the Cylinder head, the tree of cams can do the both roles, as the classical ones; else it can be made independently for the admission valves only.



Quarter valve system for Gasoline and diesel engines

By

Mr. A. Pandianathan, Assistant professor

2. Fuel nozzle that supplies fuel into combustion chamber of internal combustion engine in the shape of continuous circlecone

Summary:

To diminish the diameter of atomized fuel drops and disperse fuel drops as evenly as possible along a combustion chamber, we came up with the usage of a valve fuel injector, which supplies Diesel or gasoline into a combustion chamber in the shape of continuous circle cone with an exposure angle of 500 – 1800. The cone fuel nozzle capitalizes Homogenous Chamber Combustion Ignition (HCCI) process in internal combustion engine.

Full Description:

To diminish the diameter of atomized fuel drops and disperse fuel drops as evenly as possible along a combustion chamber, we came up with the usage of a valve fuel injector, which supplies Diesel or gasoline into a combustion chamber in the shape of continuous circle cone with an exposure angle of 500 – 1800. There is a gap between a valve and an injector housing; fuel enters a combustion chamber through this gap; its size is about 20 – 50 microns.

During the process of fuel injection, an injector valve also vibrates and that leads to substantial fractioning of fuel. The cone fuel nozzle capitalizes Homogenous Chamber Combustion Ignition (HCCI) process in internal combustion engine (both engines – Diesel and Spark Ignition) by means of wide and equally dispersing the fuel throughout the entire combustion chamber. In modern diesel engines the fuel supply into a combustion chamber is performed throughout multi-hole fuel injector. While developing cone fuel injector designs usually the following tasks are set to be resolved: diminish diameter of atomized fuel drops,

• disperse fuel drops as equally as possible along a combustionchamber,

• within one cycle fuel supply to break it down into many injections (sub-injections); usually up to 20 sub-injections for acycle.

However, dramatic diminishing of their diameter is impossible due to technological obstacles related to the hole’s fabrication process. Disperse fuel drops is resolved by selection of the most suitable combustion chamber and determination of the fuel stream direction in such a way that equal dispersion of fuel is provided among the entire combustion chamber.

The number of holes can't be increased indefinitely because of technological complexities. The newly developed nozzle of valve type supplies engine (both Diesel and spark ignition) with fuel directly into a combustion chamber. Fuel takes the shape of continuous circle cone with an exposure angle of 500 – 1800.

Fuel nozzle

By

Mr. M. Dhandayuthabani, Assistant Professor

3. Internal combustion engine with 2-stroke/4-stroke switching during its operation

Summary:

Internal combustion engine with 2 / 4 (two and four) stroke switching concept. The proposed improvements to conventional four-stroke internal combustion engine (ICE) accelerate its gas exchange and allow switching the ICE (especially Diesel) from four-stroke to two-stroke regime during engine operation. Scavenging in four-stroke and two-stroke mode of operation is fulfilled through the same inlet and exhaust valves.

Full Description:

The engine with proposed improvements can double the engine output power and of holding it up for a certain period (time depends on a type of the engine) without overheating. This feature allows increasing the vehicle power-to-weight ratio when it is necessary in accordance with the changing vehicle operation and road conditions. Eligible areas of activity for the proposed innovations are: (1) combat tank diesel engines, (2) combat vehicle and heavy army truck diesel engines, (3) heavy truck diesel engines, (4) special purpose vehicles diesel engines (emergency vehicles, fire trucks and others), and (5) engines in electrical generator sets. The essence of the innovation is to improve gas exchange during the two-stroke mode of engine operation. Four-stroke gas exchange is performed like in ordinary four-stroke diesel engine. Two-stroke gas exchange is performed through the inlet and exhaust valve unlike scavenging ports in conventional two-stroke diesel engine. The schematic gas exchange is shown in Figure. Inlet valves 6 are located on periphery of the cylinder head; exhaust valve 4 is along the cylinder axle or with a smalloffset.

The fresh air, preliminary compressed in the engine turbocharger and additionally compressed and cooled in the supercharger with inter-cooler, is supplied into the working cylinder 1 through tangential inlet passages 5 placed at a certain angle to the cylinder head surface. Then the fresh air starts swirling as a dense bed along cylinder walls and displacing to its center and wrings exhaust gases from the cylinder walls to its axle.

When the fresh air stream reaches the bottom of piston 2 it turns and expels exhaust gases, concentrated along the cylinder axle, through exhaust valve 4 into the exhaust passage 3. To lower residual gases ratio and to cool hot surfaces, cylinder scavenging, accompanied by the discharge of some amount of fresh air charge into the exhaust system, is performed. Phases of gas exchange are typical of two-stroke conventional IC engines.

Supercharger of any appropriate type with inter-cooler is complemented to conventional IC engine, the arrangement of both the inlet valves and exhaust valve on the cylinder head as well as the valve-operating system are changed in order to provide a four-stroke and a two-stroke engine mode of operation. The fuel pump is selected and adjusted to provide fuel supply in correspondence with the number of working strokes.

Unlike the conventional two-stroke IC engine (especially two-stroke Diesel engine), there are no scavenging ports in the proposed design and no losses of burnt oil through them. It provides the same harmful emission as the emission in conventional diesel engines.

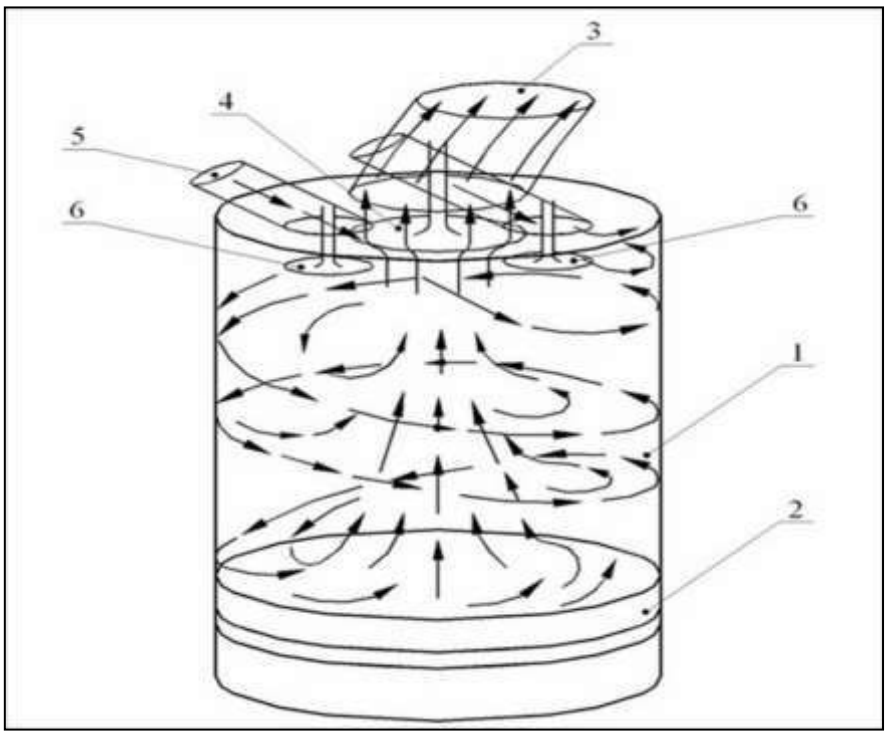


Figure represents gas exchange Phenomenon

By

Mr. M. Kirubakaran, Assistant Professor

4. Supercharger Kit for small diesel engines with the displacement of 200cc to 1,200cc

Summary:

Supercharger Kit improves a very common small diesel engines like 170F(E), 178F(E), 186F(E), R175, R180, R185, R190, S195, S1100, ZH195, ZH1100, ZH1105, ZH1115 with the engine displacement from 200cc up to 1200cc or the similar ones. The Supercharger (air compressor) as a main unit of the Supercharger Kit supplies the naturally aspirated engine with as much as additional 40% to 75% fresh air. Diesel engine power and torque increase accordingly.

Full Description:

By supplying compressed fresh air, the proposed Supercharger dramatically improves performance of the diesel engine with displacement within 200cc to 1,200cc used for vehicles like small tractor and power barrow, as well as electrical generator set.

The Supercharger is a positive displacement pump. This "true compressor" has a simple design, acceptable reliability and lighter weight. Easily manufactured, mass production of the device creates an inexpensive air pump, which offers power boosting and torque increase of up to 75%. Vehicles and electrical generator sets powered by diesel engines of lower displacement enjoy the greatest benefits from the Supercharger running at 500rpm through 6,000rpm.

Significant features of the technology:

1. Engines equipped with this Supercharger have higher (40% to 75%)torque, specifically at lowerRPM

2. Manufacturing cost is 5 to 10 times lower than similar products available onthe market

3. The Supercharger is easily adapted to a broad range of power train designs and requires simple installation in order to provide the best fresh airsupply.

To ensure workability of the proposed Supercharger technology the prototype with the following specifications was built and tested:

Overall dimensions 185x160x110mm make the Supercharger as compact as possible under the set output parameters

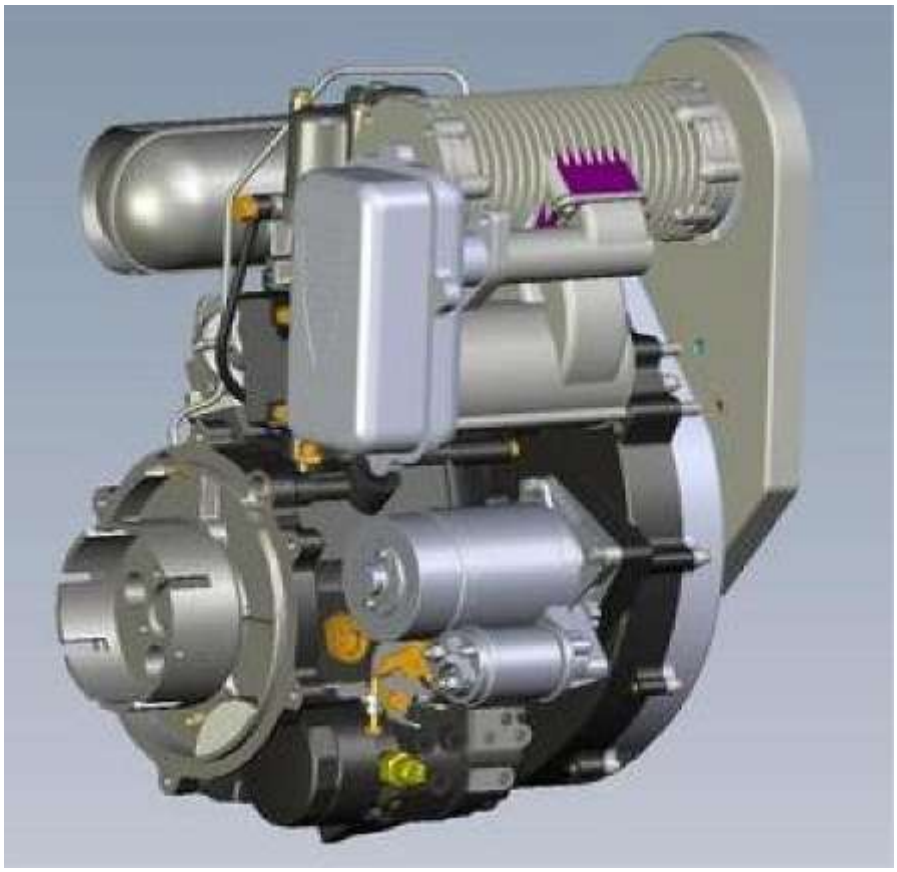
Weight is 3.4kg

Capacity per revolution is 190cc

Maximum sustained speed is 6,000rpm

Compression ratio is 1.35

At 6,000rpm normal outputs are 1.05m3/min, 1.01m3/min, 0.92m3/min, and 0.75m3/min with boost pressures of 0.0bar,



Supercharge kit

By

Mr. M. Senthil, Assistant Professor

5. Latest trends in cadtechnology

The Latest Trends in CAD technology

As technology keeps evolving, Computer Aided Design trends are also changing ata fast pace. Here are the top design trends which are expected to dominate the design industry in the years tocome:

Upstart Technology

Like every technology-based solution, CAD software is also changing at an accelerated pace to adapt itself to the ever-changing world of digital technology. A lot of enterprises worldwide have released cutting edge collaborative and cloud-based solutions which offer a whole new range of functionalities. Enterprises and organizations of all sizes are indulging in innovating and enabling Computer Aided Designing with new capabilities which can be leveraged for better designing of products, machines, and other entities. Upstart technical firms are among the significant contributors of such new design trends.

A plethora of design experts believes that computer aided designing technology as we know it today needs an upgrade, to deliver better services. Therefore, it is safe to expect that this technique will undergo a complete transformation in the years to come. Internet of Things the IoT (Internet of Things) refers to the network of connected devices which can interact with their surroundings and collecting data. Connected objects in IoT networks can interact with each other and sending signals. Most of these devices are either the part of a home, an office, a factory or a car. In order to plan, design, and personalize marketing strategies, IoT is amongst the latest trends in computer designing which is catching the attention of various people.

It has been estimated by Cisco, that by 2020, over 50 billion devices worldwide will be online and be a part of some or the other IoT network. This will certainly change the way we work and complete our day to day tasks in a dramatic manner. While everyone on the planet would be affected and impacted by these devices, but the personnel who will be affected the most will be engineers. Once the manufacturing units, factories and facilities will come online, massive new efficiencies will be introduced. Thus, computer aided designing will evolve as one of the most preferred ways to design newer machines which can interact and deliver incredible performance.

1. Mobile Access toCAD

Mobile access and mobility have become two of the most vital aspects that organizations and people look for in almost every technology. Thus, mobile access is going to be one of the top trends in the coming years. As per a survey, close to 30% of computer aided designing developers are currently deploying some means of accessing the data on mobile platforms and this number is expected to grow by 8-10 per cent every year. Mobile access allows people to access tools, apps and other relevant data anywhere and anytime. This implies increased productivity and that's why the tech experts are looking out for innovative ways using which computer aided designing can be made mobile.

2. 3D PrintedBuildings

Among the evolving trends in CAD technology are 3D printed buildings. Now a 3D printer can support the creation of an entire building. In fact, many tools and 3D printers are being used for construction of entire apartment blocks. This method is much more eco-friendly, cost-effective, and time-efficient inprinting buildings than the other conventional methods.

In the future, 3D printers using such technology will make it much easier to develop housing in highly populated areas. It is expected that construction firms in the coming years will catch up with this technology facilitating innovation in design.

3. CAD and the Cloud are expected to GrowTogether

One of the latest trends in computer aided design technology, which is expected to change the way we access tools and use them, is the growth of computer designing in the cloud. Rapid advancements in cloud technology have become a great way for organizations worldwide to access vital information on the go and to make the data, tools, and much more available to people anywhere and at any time.

Today, the power of the cloud is driving Computer Aided Technology as well, allowing developers and designers to save their work on cloud platforms which can then be accessed from anywhere. The benefits which such software offer include higher mobility, ease of updating the software, increased storage capacity, and more importantly, significant cost reductions.

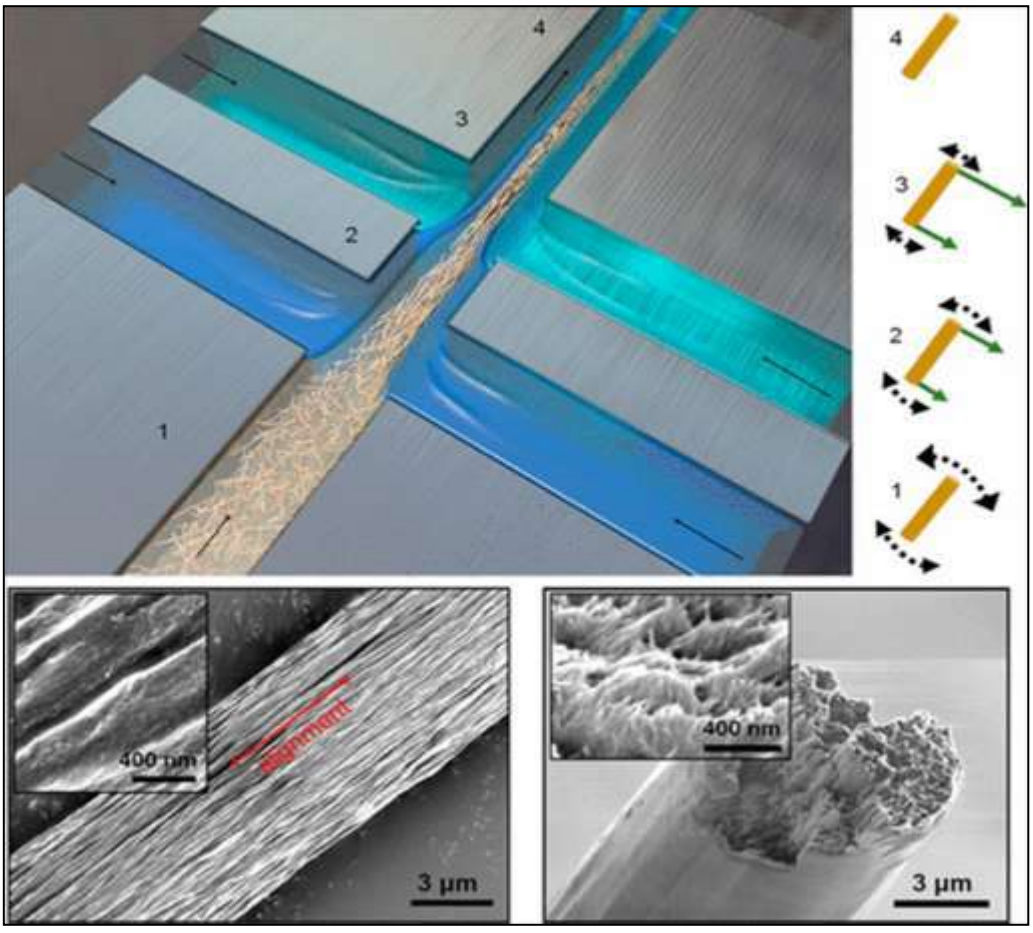
By

Mr. W. Edwinlyonal, Assistant Professor

6. The strongest bio-material – stronger than steel and itsbiodegradable

The strongest biomaterial known to man was the Spider silk, which is pound to pound stronger than steel. Many types of research have made to either replicate this material on a large scale or even surpass the spider silk in terms of strength, but they weren't able to recreate such a material.

However, recent research conducted by Daniel Soderbergh from the KTH Royal Institute of Technology in Stockholm might have broken the mold. The team of researchers has invented a new material that can be touted as the strongest biomaterial ever produced. The best part of this material is that even though it is artificial, it is biodegradable. Hence, it can be used as a great alternative to plastic and other non-degradable objects. The material is made from cellulose nanofibers that are sourced from wood and plant body. The final structure has a tensile stiffness of 86 gigapascals (GPa) and a tensile strength of 1.57 GPa. In other words, the new material is **8** times stiffer than a silk spider web.



Biomaterial

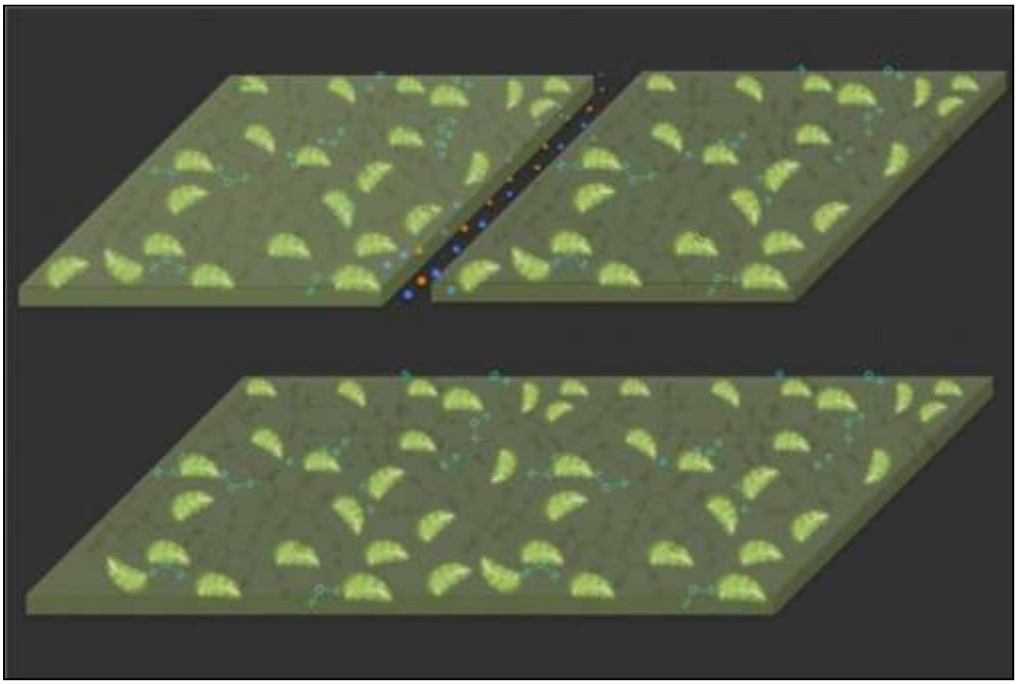
By

Mr. P. Sundaram, Assistant professor

7. The self-healing material - it does it without externalstimulant

This material we are going to talk about is still in its early stage, but its properties are better than what we have ever seen before. Hence, this is a material we are going to seeing more in the future.

It is a self-healing material is a polymer that can heal itself by using carbon in the air. The invention is from MIT chemical engineers. The materials can not only repair but can also grow or strengthen from taking in carbon from the atmosphere. The technology resembles how plants take in carbon dioxide to grow tissues and become stronger. A material that can absorb carbon from the atmosphere as an obvious advantage when we consider its ecological impact. According to the researcher, this is the first carbon fixing material to exist outside of biological beings.



Self-heating material

By

Mr. S. Kumaradevan, Assistant professor

8. Anti-lock Brakes Has Helped to SaveLives

ABS system

Anti-lock brakes or anti-skid barking systems (ABS) are a pretty old piece of automobile engineering. Although modern systems were introduced in the 1950s in the Aero-industry and became popular in cars from the 1970s onwards, the concept dates from as early as 1908.

Modern systems allow the car to maintain tractive contact with the road during braking, thus preventing the wheels from locking or ceasing to rotate and therefore causing the vehicle to skid. The system is automated and takes advantage of the principles of threshold and cadence braking practiced by skilled drivers using the previous generation of brakingsystems.

The first patented 'ABS' was developed by German engineer Karl Wessel in 1928 - but he would never develop a working product.

During the 1950's the technology began to take shape with Dunlop Minaret's anti-skid system that was used extensively on UK jet aircraft like the Avro Vulcan and English Electric Lightning.

A truly modern system was introduced by Chrysler and was a computerized, three channel, four-sensor all-wheel ABS. It was called "Sure Brake" and came as standard on their 1971 Imperial. Other car manufacturers followed suit over the following decades with ABS being introduced in the 1990's on motorcycles.

By

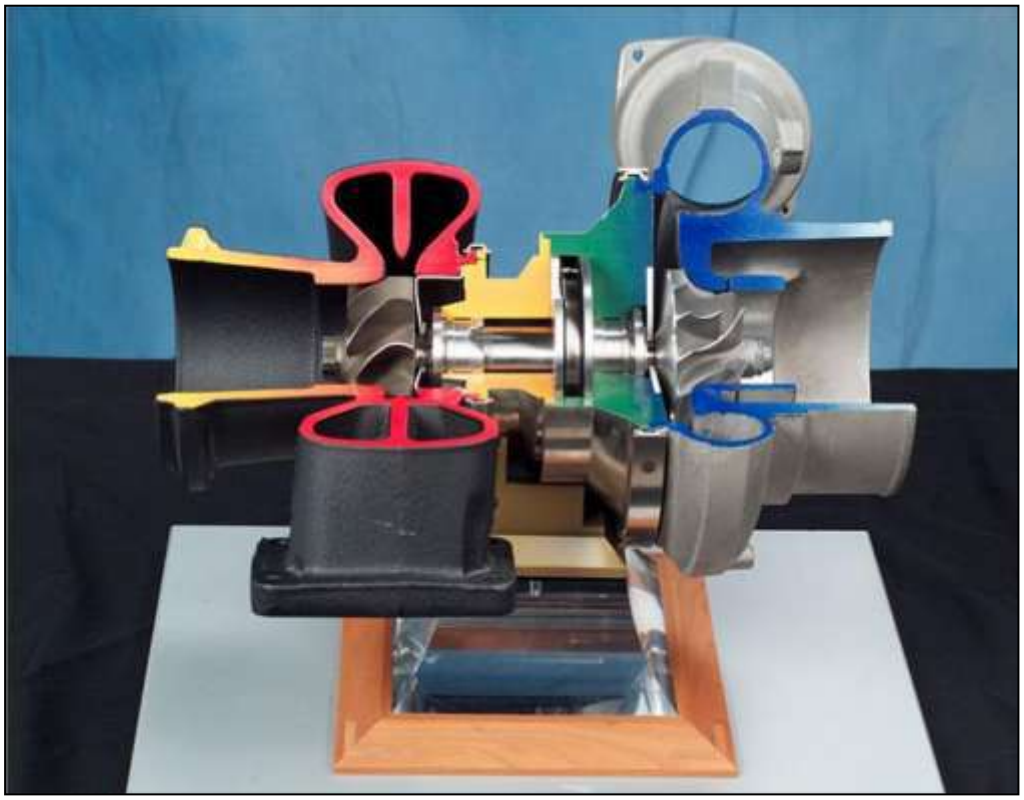
Mr. R. Arunprasath, Assistant professor

9. Turbochargers Increased Energy Power and FuelEfficiency

Turbochargers, Turbos, have been used in production cars since the 1960's. They are effectively compressor that is driven by the cars exhaust gasses, forcing more air into the engine's cylinders. More fuel and more air leads to more power and can make a smaller engine perform outside of its class.

They are commonly used with Otto and Diesel cycle engines. The technology was invented by Swiss Engineer Alfred Bauchi who received a patent for it in 1905. They would initially find applications in aircraft engines, especially during WW2.

Today, car manufacturers now generally downsize their engine sizes to include turbocharged alternatives. This simultaneously boosts performance and increases fuel efficiency.



Turbochargers

By

Mr. V. Pandiaraj, Assistant professor

10. IMPORTANCE OFEDUCATION

Education is an essential tool for bright future for all of us. We can achieve anything good in the life using the tool of education. Higher level of education helps people in earning social and family respect and unique recognition. Education is an essential tool for bright future for all of us. We can achieve anything good in the life using the tool of education. Higher level of education helps people in earning social and family respect and unique recognition. Education time is a crucial part of life for everyone personally and socially. It provides a person a unique standard in the life and feeling of wellbeing.

Education provides ability to solve any big social and family and even national and international level problems. No one of us can unseen the importance of education in the life in every aspect. It turns the minds towards positivity in the life and removes all the mental problems and negativity.

Our parent plays a great role in turning our mind towards education from childhood. They try their best to give us good education from the popular educational institutions. It provides us opportunity to gain technical and highly skilled knowledge as well as enlarge our views all over the world. Best ways to enhance the skill and knowledge level is to get practiced of reading newspaper, seeing educational programmes on TV, reading books of good authors, etc. Education makes us more civilized and better educated. It helps us in making better position in the society and achieves dreamed position in the job.

Regular and proper study leads us towards success by making a goal of life. Earlier the education system was so tough and people from all castes were not able to get education according to their own wish. It was very tough to get admission in the proffered colleges because of high cost. But now it has become so simple and easy to go ahead in the education.

By

Mr. K. Dhamodaran, Assistant Professor

11. How to StopWorrying

If you want to stop worrying, then you need to stop thinking so much. Thinking is a good thing of course but when you focus a lot of time over analyzing things, it can cause a lot of stress. Sometimes worrying is a good thing because it's your mind's way of acknowledging the importance of the situation. However, many times we worry excessively for invalid reasons. This article will give you a couple of different ways to help you to worry a little bit less.

When we worry, what we are actually doing is projecting our mind out into the future. We picture negative scenarios and images. We think about the worse possible situations. Students may spend a lot of time worrying about how they did on the test they just took. The person who is running late and is stuck in traffic is worried about what people will think of him when he shows up to the meeting late. The employee watches the news during his lunch time in the break room and sees that unemployment rate is climbing starts to worry about the security of his job.

In all these situations, the person is worried about something that hasn't happened yet. Not only that, they are worried about something that they have no control over now. If you want to know how to stop worrying, then you need to learn how to be in the moment. Realize that most things people worry about coming true, never come true.

You can spend a great majority of your waking life worrying yourself to the point where you start to lower your happiness level. You may even start to draw back from life because you're afraid of every possible negative situation that you have imagined in your head coming true.

So how do you just stop worrying about everything? Here's a simple rule. If you can't do anything to improve the situation now, let it go. Stop worrying so much about things that you have no control over. The student who is worried about what score he got is just wasting his time because what's done is done. Whether he spends his time worrying or having fun, it's not going to change the outcome.

The employee who sees the unemployment rate increasing can worry about his job and perhaps start working harder but now, during his lunch, he can't do much about it so there is no point in worrying.

A great book about this topic that you should read is called, "How to StopWorrying and Start Living" by Dale Carnegie. The book offers a lot of great ways to help you reduce your habit of worrying. You can try writing down the things you are worried about and find out what percentage of those things come true.

By

Mr. S. Rajesh kumar, Assistant Professor

PHOTO IMAGES OF THE EVENTS HELD

AUTO DESK INVENTOR WORKSHOP

Inauguration of Auto Desk Inventor workshop

Fusion 360º phase – I

Students participated in DESIGN NOW COMPETITION

Honorable Principal delivering the Felicitation address

Mr. G. Jerome Siby receiving 1st Prize from Chief Guest

Dr. S. Renoldelsen Event Co-Ordinator delivering the vote of Thanks

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