



AVIT
AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY



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RESEARCH FOUNDATION
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DEPARTMENT OF MECHANICAL ENGINEERING ASSOCIATION OF MECHANICAL ENGINEERS OF AVIT-AMEA

In association with
SOCIETY OF AUTOMOTIVE ENGINEERS

HORSE POWER 2021

-Let us Gear Up-

9TH JUNE 2021 TO 10TH JUNE 2021

The Department of Mechanical Engineering in association with Society of Automotive Engineers organized HORSE POWER 2021-VIRTUAL SYMPOSIUM from 9th June 2021 to 10th June 2021. The symposium was initiated with the motto of Let us Gear Up to motivate the students during the lock down period to exhibit and enhance their skillset. The students understood the objective and shown enthusiastic participation in all the events. The events conducted are Technical Group Discussion, Poster Presentation, Technical Quiz, Paper Presentation, Technical Connections, Part Modeling Contest, Guess the Car, Drawing (Vaccination Awareness), Memes, Logo Making (Design), Video and Business Idea in a Pandemic Situation. All the events were received good response from students of various colleges across the country. The events were started with an Inaugural programme on 9th June 2021. Prof. L.Prabhu, HoD, Mechanical Engineering and VP(ADMIN), AVIT welcome the gathering and Dr.K.L.Shunmuganathan, Principal, AVIT delivered the presidential Address. Prof. J.Senthil, Assoc. Prof., Dept. of Mechanical Engg., AVIT & Event Co-ordinator, HORSEPOWER 2021 briefed the motto of the symposium. Prof.P.Rajasekaran, Deputy Registrar-Administration, VMRF-DU delivered the special address. Thiru. P.Sundararajan, Vice President (Corporate Affairs), CEAT LTD, Chennai Inaugurated the symposium and delivered the inaugural address. Dr.D.Vijendra Babu, Vice-Principal(Part Time Studies), AVIT felicitated the event and Dr.M.Saravana Kumar, Asst. Prof. (G-II), Dept. of Mechanical Engg., AVIT & Event Co-ordinator, HORSEPOWER 2021 proposed the formal vote of thanks.

Day 1: 9.6.2021 -Event #1 Technical Group Discussion

Around 30 students from various colleges including 15 from AVIT participated in the group discussion. The young budding community discussed on various topics related to combating

the covid pandemic and technological utilization for the same. The First prize was bagged by Mr.Aditya Sathish Kumar of AMET University and Second and Third Place by Mr.Ammar Ahmed Pasha of AVIT and Ms.Thejeswini.V of Thiagarajar Polytechnic College respectively.

Day 1: 9.6.2021 -Event #2 Poster Presentation

Around 31 students from various colleges including 16 students from AVIT had submitted the poster for presentation. The students were asked to explain their poster and question and answer session was conducted. The event was hosted through MS Teams Virtual Platform. Mr.Aravind Jagadees of AVIT and Mr.Sachin Sampath of AVIT Secured first two positions respectively and the third prize was bagged by Ms.Amirtha Lakshmi from Saranathan College of Engineering. The theme of poster presentation is i)Digital Manufacturing, ii)Green Manufacturing, iii)Nano-Technology and iv)3D Printing (Additive Manufacturing). The posters well portrayed the theme.

Day 1: 9.6.2021 -Event #3 Technical Quiz

Around 107 students from various colleges including 38 from AVIT participated in the preliminary round. The prelims was conducted in objective type through google form and after the assessment, 5 participants including one participant from AVIT were selected for Finals. The Finals with General round, Visual round, Identification round and Jackpot round were conducted through Zoom meeting. The First prize was bagged by Mr. Faizan Ahamed of AVIT, Second by Mr.M.Aman Kalra of JC Bose University of Science and Technology and Third Place was shared by Mr.Jagan S of Bannari Amman Institute of Technology and Mr.M.Vignesh of Govt. College of Technology, Coimbatore.

Day 1: 9.6.2021 -Event #4 Guess the Car

Guess the Car-An event that was well acclaimed by the participants with more interest as they were needed to identify the car through the images that were faded off. Around 35 students from various colleges including 15 from AVIT has taken part in the event. The first two prizes were won by Mr.Judeson Joseph of AVIT and Mr.Bibekanand Guru of Sal Institute of Technology and Engineering Research

Day 1: 9.6.2021 -Event #5 Drawing (Vaccination Awareness)

Around 21 students from various colleges including 14 students from AVIT had submitted the drawing for presentation. The students were asked to explain their drawing and question and answer session was conducted. The event was hosted through MS Teams

Virtual Platform. Mr. H M Sagar of Ballari Institute of Technology and Management and Mr. Mr.Sam Jebaz of AVIT Secured first two positions respectively and the third prize was bagged by Ms.Hemalatha T from AVIT. The theme of drawing competition is Vaccination Awareness COVID 19.

Day 1: 9.6.2021 -Event #6 Memes

Memes - An immediate reflection, that could replicate the real time happenings in a hilarious way. The participants were given a theme of Covid 19 Vaccination awareness and 9 participants including 4 from AVIT presented their memes. Mr.Alan Sam Oommen of AVIT and Mr.Faizan Ahamed of AVIT bagged first two prizes and third prize was won by Mr.Sham Patel of Sal Institute of Technology & Engineering Research.

Day 2: 10.6.2021 -Event #7 Paper Presentation

Around 29 papers from various colleges including 4 papers from AVIT had been selected for the presentation. The event was hosted through MS Teams Virtual Platform. Mr.M.Vignesh of Govt. College of Technology, Coimbatore and Mr.Ramakrishnan R of Sairam Engineering College Secured first two positions respectively and the third prize was shared between Mr. Mohan R of Pandian Saraswathi Yadav Engineering College and Mr. Hithul Kannan of AVIT. The theme of paper presentation is Recent developments in Engineering and Technology.

Day 2: 10.6.2021 -Event #8 Technical Connections

Technical Connections- The participant needs to identify the technical word by connecting the images displayed. Around 35 students including 15 students from AVIT participated enthusiastically. The event was conducted through MS teams. Ms.Amirtha Lakshmi from Saranathan College of Engineering and Ms.Kavya from Ballari Institute of Technology and Management were the two top winners.

Day 2: 10.6.2021 -Event #9 Part Modeling Contest

Around 46 students from various colleges including 5 from AVIT participated in the preliminary round. The prelims was conducted through google form with questions from Design Engineering. After the assessment, 20 participants were selected for Finals. 2D component drawing was given to participants and they were asked to draw a 3D view of the same using any design software within 30 minutes. The participants showcased their design skills and sent the design for evaluation. Mr. Sri Jaivatsan M from Bannari Amman

Institute of Technology secured first place and Mr.M.Aman Kalra of JC Bose University of Science and Technology and Mr.Jagan S of Bannari Amman Institute of Technology followed him.

Day 2: 10.6.2021 -Event #10 Logo Making (Design)

Logo Making(Design)- The motto of the event is to kindle the skill of young minds towards start up and the theme for this competition is logo designing for the proposed start up. Around 11 students including 5 from AVIT participated in the event. Mr.Sam Jebaz from AVIT and Mr.RaghulKannan R from Jeppiaar Institute of Technology secured the first two positions respectively.

Day 2: 10.6.2021 -Event #11 Video

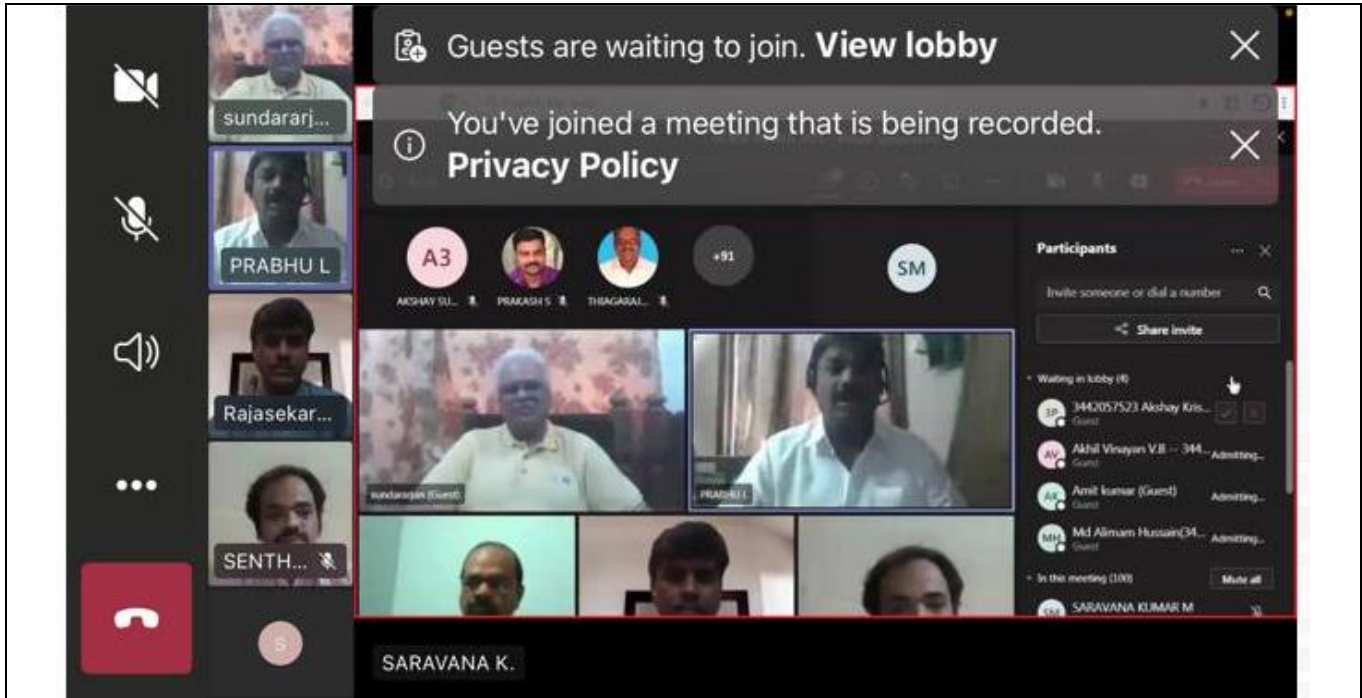
The future film makers of India has sent 17 videos including 6 videos from AVIT to test their creativity skills under the theme Covid 19 Awareness. Mr. Sanidhya Jain from MBM Engineering College, Mr.Govind S Nair from AVIT, Ms.Yogalakshmi G from SRM Valliammai Engineering College, were selected as best Video creators. The event was hosted through MS Teams platform.

Day 2: 10.6.2021 -Event #12 Business Idea in a Pandemic Situation

The future entrepreneurs of India has submitted 9 proposals including 4 proposals from AVIT for the contest. The young budding talents were appreciated with motivational questions and the Jury suggested them with progressive comments. The First Three positions were bagged by Ms.Swathi P, Pandian Saraswathi Yadav Engineering College, Mr.Hithul Kannan, AVIT and Ms.Amirtha Lakshmi, Saranathan College of Engineering respectively. The title for the proposal was War against COVID 19 and the event was hosted through MS Teams meeting.

The two day-12 events were conducted with overwhelming response and all the participants were awarded with E-certificates. Also Cash prizes were given to the winners of technical events. The Winners were announced by Mr.Syed Mohammed,Director-International Relations, VMRF-DU during the valediction programme held on 10th June 2021. Formerly Prof. L.Prabhu, HoD,Mechanical Engineering and VP(ADMIN),AVIT welcome the gathering and Prof.M.Saravanan,Asst. Prof. (G-I),Dept. of Mechanical Engg., AVIT & Staff Co-ordinator, HORSEPOWER 2021 presented the report on symposium. Dr.S.Prabhakar, Associate Professor, Automobile Stream, Wollo University, kombalcha Institute of Technology, Ethiopia participated and delivered the valedictory address. Prof.N.Shiva

Kumar, Asst. Prof. (G-II), Dept. of Mechanical Engg., AVIT & Staff Co-ordinator, HORSEPOWER 2021 curtailed the events with his vote of thanks. All the events were handled by a team of dedicated Faculty Members. The two days virtual Symposium was well co-ordinated by the organizing committee with Mr. J. Senthil and Dr. M. Saravana Kumar as Event co-ordinators and Mr. N. Shiva Kumar and Mr. M. Saravanan as Staff co-ordinators under the guidance of Prof. L. Prabhu, HoD, Mechanical Engineering and VP (Admin), AVIT.



Day 1: 9.6.2021 Inaugural Programme

HEAT ENERGY – AN ALTERNATIVE SOURCE

ABSTRACT	INTRODUCTION	METHODOLOGY	DISCUSSION												
<p>Have you ever thought, where all the waste of our earth will finally go? How they actually affect the life on earth? Every year 2.31 billion tons of waste generated worldwide. It will increase up to 70% by 2050. Almost 75% of waste is dumped in open grounds (landfills) which affects both the aquatic and terrestrial ecosystems and cause lots of health issues. Here, I come up with a perfect solution ("WASTE TO ENERGY PLANT"), where we can convert all the Municipal Solid Waste (MSW) into electricity and as another innovative idea which can lead to "CLEAN GREEN & SAFE WORLD".</p> <p>Presented by ARITHA LAKSHMI K SURESH SARATHAN COLLEGE OF ENGINEERING, TIRUCHY</p>	<p>BY 2016 ESTIMATION:</p> <ul style="list-style-type: none"> EVERY YEAR 2.31 BILLION TONNES OF WASTE GENERATED WORLD WIDE IT WILL INCREASE UPTO 70% BY 2050 INDIA -> WORLD'S HIGHEST WASTE GENERATION -> PRODUCE 277 MILLION TONNES OF WASTE EVERY YEAR, WHICH IS 80% OF WASTE GENERATED IN SOUTH ASIA, 13% OF GLOBAL WASTE. <p>TOP 5 MUNICIPAL SOLID WASTE GENERATES ANNUALLY</p> <table border="1" style="font-size: 0.7em;"> <tr><th>Country</th><th>Waste (Million Tons)</th></tr> <tr><td>USA</td><td>220</td></tr> <tr><td>China</td><td>190</td></tr> <tr><td>India</td><td>170</td></tr> <tr><td>Japan</td><td>120</td></tr> <tr><td>UK</td><td>110</td></tr> </table> <p>AIM</p> <p>IN SOUTH ASIA:</p> <ul style="list-style-type: none"> open dumping - 76% incinerating - 14% Landfills - 4% Recycling - 5% <p>WASTE DISPOSAL IN SOUTH ASIA</p> <p>OPEN DUMPING:</p> <ul style="list-style-type: none"> major reason for pollution, waste generation & several environmental issues cause health issues, affects lots of lives <p>BOTH MARINE & TERRESTRIAL</p> <p>"TO FIND A SOLUTION FOR AN EFFECTIVE WAY, COME UP WITH AN IDEA OF WASTE TO ENERGY PLANT, WHERE WE CAN CONVERT ALL THE WASTE INTO ELECTRICITY THROUGH VARIOUS PROCESSES"</p>	Country	Waste (Million Tons)	USA	220	China	190	India	170	Japan	120	UK	110	<p>The process of generating electricity in a mass-burn waste-to-energy plant has seven steps:</p> <ol style="list-style-type: none"> 1. Waste is dumped from garbage trucks into a large pit. 2. A giant claw on a crane grabs waste and dumps it in a combustion chamber. 3. The waste (fuel) is burned, releasing heat. 4. The heat turns water into steam in a boiler. 5. The high-pressure steam turns the blades of a turbine. <p>It is released through a smoke stack.</p> <p>7. Ash is collected from the boiler and the air pollution control system</p>	<p>IT HELPS TO REDUCE THE AMOUNT OF WASTE IN THE WORLD UPTO 80-90% AND PROTECTS THE ENVIRONMENT.</p> <ul style="list-style-type: none"> COST -> 45% OF THERMAL POWER PLANT -> 75% OF NATURAL GAS POWER PLANT REDUCE LANDFILL SIZE REDUCE TIPPING FEE AFTER PROCESSING, PRODUCE VERY LESS POLLUTION NO HARM TO AQUATIC & TERRESTRIAL ECOSYSTEM BECAUSE OF LANDFILLS AND POLLUTION <p>FURTHER WORK</p> <p>TO CREATE A PORTABLE & EFFICIENT MINI WTE PLANT WITH SIMPLE INFRASTRUCTURE BUT SAME FUNCTION OF A WELL ESTABLISHED WTE PLANT FOR EVERY HOME, STREET IN THE NATION. SO WASTE CAN BE TREATED AT THE BASIC GRASS ROOT LEVEL AND WE CAN PREVENT POLLUTION AND THE ACCUMULATION OF WASTE AND ALSO WE CAN GENERATE ENERGY FOR OUR USE.</p> <p>3D MODEL</p> <p>CONCLUSIONS</p> <ol style="list-style-type: none"> 1. BY USING WTE PLANT WE CAN REDUCE THE LANDFILL, WHICH IS THE MAJOR THREAT TO THE LIFE ON EARTH. 2. IT CAN BE A VERY GOOD ALTERNATIVE SOURCE OF ALL RENEWABLE AS WELL AS NON-RENEWABLE RESOURCES. 3. LET'S MOVE FORWARD FOR CLEAN, GREEN & SAFE WORLD.
Country	Waste (Million Tons)														
USA	220														
China	190														
India	170														
Japan	120														
UK	110														

Day 1: 9.6.2021 Poster Presentation

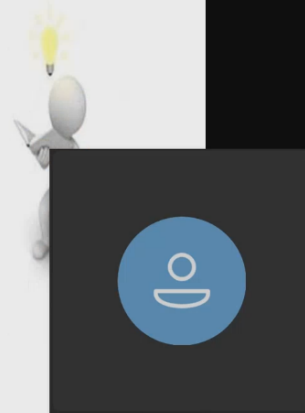
Value Proposition

TYPE OF PRODUCT

- Equipment

BENEFITS

- User Friendly
- Easy to operate independently
- Dual Purpose (Chair as well as Bed)



Day 2: 10.6.2021 Business Idea in a Pandemic Situation



Day 2: 10.6.2021 Valedictory Programme



To aravind jagadees
+91 81119 48096

₹1,000.00

I PRIZE :POSTER PRESENTATION
-HORSE POWER 21, AVIT

Completed · 12 Jun, 21:11



To Aman Kalra
+91 94664 28828

₹500.00

Part Modeling : II Prize, Horsepower
21,AVIT

Completed · 12 Jun, 21:37

ICICI Bank XXXXXXXX1555

UPI transaction ID
116372751549
To: ARAVIND JAGADEES
aravindjagadees@okhdfcbank
From: L PRABHU (ICICI Bank)
prablogu@okicici
Google Transaction ID
CICAgOC02bTILA

POWERED BY L1FI



ICICI Bank XXXXXXXX1555

UPI transaction ID
116372976918
To: AMAN KALRA
amankalra1122@oksbi
From: L PRABHU (ICICI Bank)
prablogu@okicici
Google Transaction ID
CICAgOC02YH6bw

POWERED BY L1FI



Cash Prize for the Winner and I Runner



DEPARTMENT OF MECHANICAL ENGINEERING. SOCIETY OF AUTOMOTIVE ENGINEERS.



In association with

ASSOCIATION OF MECHANICAL ENGINEERS OF AVIT (AMEA)

HORSE POWER 2021

CERTIFICATE OF PARTICIPATION

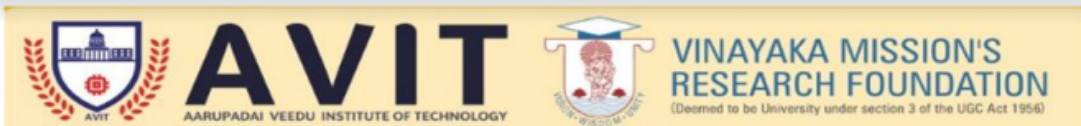
This is to certify that Mr/ Ms DEEPU M of III MECHANICAL MUSALIAR COLLEGE OF ENGINEERING AND TECHNOLOGY PATHANAMTHITTA has participated in the TECHNICAL QUIZ Event during VIRTUAL SYMPOSIUM- HORSE POWER 2021 held on 9th and 10th June 2021

EVENT COORDINATOR
Dr.M.Saravana kumar
AP (GR1) Mech -AVIT

EVENT COORDINATOR
Prof.J.Senthil
Assoc Prof Mech- AVIT

CONVENOR
Prof L.Prabhu
VP (Admin) & HOD Mech -AVIT

CHIEF PATRON
Dr.K.L.Shunmuganathan
Principal-AVIT



DEPARTMENT OF MECHANICAL ENGINEERING. SOCIETY OF AUTOMOTIVE ENGINEERS.



In association with

ASSOCIATION OF MECHANICAL ENGINEERS OF AVIT (AMEA)

HORSE POWER 2021
CERTIFICATE OF MERIT

This is to certify that Mr./ Ms. **SRI JAIVATSAN M** of **MECH/ BANNARI AMMAN INSTITUTE OF TECHNOLOGY** has participated and secured **FIRST PLACE** in the **PART MODELING CONTEST** Event during **VIRTUAL SYMPOSIUM- HORSE POWER 2021** held on 9th and 10th June 2021

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CHIEF PATRON
Dr.K.L.Shunmuganathan
Principal-AVIT

e-certificate for Winners and Participants