



Suresh Angadi Education Foundation's

ANGADI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Savagaon Road, Belagavi – 590 009

(Approved by AICTE, New Delhi & Affiliated to Visvesvaraya Technological University, Belagavi)

Accredited By NAAC



Department of Mechanical Engineering

Technical Magazine

MECHVISTA

Vision \leftrightarrow Future \leftrightarrow Innovation

TECHNOLOGY

IS THE KEY OF INNOVATION



Principal & Director Message



Dr. Anand Deshpande

An Institute is assessed on the basis of the Academic ambiance and outcome of the system in terms of performance and achievements of the students and staff in teaching-learning, research, innovation, Placements, and results. AITM has been known for its Academic credentials coupled with holistic growth in all directions. The new generation of competent minds must imbibe knowledge and practically they should comprehend the art of balancing brilliant technical, managerial communication, and interpersonal skills, nest. The Institute has achieved a series of milestones with the help of brilliant students, dedicated staff, and encouraging Management. We promise a wonderful experience of rich Academic and Excellent facilities coupled with professional practices and blended with an affectionate concern for our Students.

INSTITUTE VISION AND MISSION:

VISION:

To become a premier institute committed to academic excellence and global competence for the holistic development of students.

MISSION:

M1: Develop competent human resources, adopt outcome-based education (OBE) and Implement cognitive assessment of students.

M2: Inculcate the traits of global competencies (such as domain expertise, Accountability, ethics, problem solving ability, communication skills, leadership Qualities and life-long learning) amongst the students.

M3: Nurture and train our students to have domain knowledge, develop the qualities of global professionals and to have social consciousness for holistic development.





HOD Message from



Dr. Malagouda K. Patil

Mechanical Engineering Department at Angadi Institute of Technology and Management, Belagavi. We started our journey in the year of 2010. Over the last 13 years, we have grown our expertise and competence in the core Mechanical Engineering curriculum and research. At present the Department is running with UG program with 60 intake, PG program in (PEST with sanctioned intake of 12 and R&D cell recognized by the VTU. The department with a cutting edge resources and competent faculty members. The UG and PG program provides an excellent opportunity to learn the fundamentals of mechanical engineering in various domains of mechanical engineering.

DEPARTMENT VISION AND MISSION

Vision:

To impart quality education in Mechanical engineering by developing the core competencies to meet the diverse needs of global challenges.

Mission:

M1: Educate our students with domain knowledge and practical skills by qualified faculty in tune with technological developments.

M2: Adopt student-centric learning techniques to develop analytical and problem solving-skills.

M3: Develop a conducive atmosphere to make the students imbibe professional skills to foster the leadership traits and lifelong learning



Editor's Overview

The Editorial Team is delighted to present the First Edition of the Mechanical Engineering Department Magazine, *MECHVISTA*. This inaugural issue marks an important milestone in our department's journey toward academic excellence, innovation, and knowledge dissemination.

This edition highlights the noteworthy achievements of our students, showcasing their academic accomplishments, innovative projects, internships, and technical initiatives. Their dedication, creativity, and commitment to engineering excellence reflect the strong academic foundation and progressive learning environment of our institution. The magazine also features insightful contributions from our esteemed faculty members, presenting ongoing research work, scholarly articles, and perspectives on emerging technologies shaping the future of mechanical engineering.

MECHVISTA is envisioned as a platform to encourage intellectual exchange, foster collaboration, and inspire the next generation of engineers. Through this publication, we aim to strengthen the academic bond among students, faculty, and alumni while promoting research culture, innovation, and professional growth.

The Editorial Team expresses sincere gratitude to all contributors—students, faculty members, and staff—whose dedicated efforts made this first edition possible. We also thank our readers for their encouragement and continued support.

We extend our best wishes to our students for success in their academic and professional endeavors and acknowledge our faculty members for their constant guidance, mentorship, and commitment to excellence. We hope this inaugural edition of *MECHVISTA* proves to be informative, inspiring, and enriching.



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Tech-Fusion

(Fusion of technologies to solve real-world problems)

TECH-FUSION (“Fusion of technologies to solve real-world problems”) is a project exhibition conducted under the banner of the **Mechanical Engineering Association** with the objective of providing a platform for students to showcase innovative and practical engineering solutions. The exhibition focused on promoting project-based learning and encouraging the integration of multiple technologies to address real-world engineering challenges.

The exhibition was conducted on **December 12** at the **Mechanical Engineering Workshop**. The program was coordinated by **Mr. V. Sushankumar, Project Coordinator**, under the guidance and support of **Dr. M. K. Patil, Head of the Department**, and **Prof. K. A. Jere, Academic Coordinator**. The event was formally inaugurated by **Dr. M. K. Patil, Head of the Department of Mechanical Engineering**.

All final-year students actively showcased their project models during the exhibition. The event witnessed enthusiastic participation from **third- and fifth-semester students**, faculty members, and other visitors. The audience actively interacted with the participants by raising questions related to project objectives, design methodology, working principles, applications, and problem statements. These interactions significantly enhanced technical discussions, peer learning, and knowledge sharing.

Overall, **TECH-FUSION** successfully enhanced students’ technical competence, communication skills, and practical understanding, while creating an engaging academic environment aligned with **outcome-based education** and **NAAC/NBA quality parameters**.

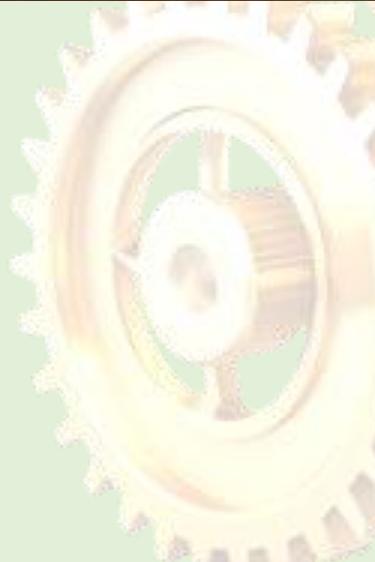
— “**Tomorrow belongs to the curious, the brave, and the innovative**”



TECH-FUSION 2K26 Moments



GALLERY OF TECH-FUSION







➤ DESIGN AND FABRICATION OF SHOE FOOT CLEANING MACHINE

Dr. Mallagouda Patil, Mahantesh Kakatkar, Akash Belgaonkar, Ashish Ghatare, Shubham Desai

Angadi Institute of Technology and Management, Belagavi

Abstract: Indoor environment cleanliness is always a challenge because footwear acts as the main carrier for outdoor dust, allergens, and microbial contaminants. This paper details the design and fabrication of an automated shoe foot dusting machine to fill the gap between manual cleaning and high cost industrial systems. The machine employs a sequence of rotating brushes run by an electric motor that removes dust effectively from the sole and sides of the shoes. Design considerations emphasize the safety of the user, ease of maintenance, and portability of the device. Experimental results demonstrate that the device reduces the amount of particulate matter tracked into a room, compared to traditional floor mats. This device represents an affordable solution for indoor air quality and floor hygiene in commercial and residential establishments. Experiments prove that there is a substantial reduction in the level of dust tracked into houses with the use of this device compared to floor mats. This device looks forward to being a perfect, cost-effective solution in improving indoor air quality and floor cleanliness.

➤ DESIGN & FABRICATION OF CONVERSION OF PLASTIC INTO CRUDE OIL

Prof. Sujit Sali, Ganesh Shinde, Guru Kanbarkar, Imran Halall

Angadi Institute of Technology and Management, Belagavi

Abstract: Plastic have woven their way into our daily lives and poses a tremendous threat to the environment. Over 100 million tons of plastics are produced annually worldwide and the used products have become a common feature at over flowing bins and landfills. Converting edible oil plastic waste into a fuel hold great promise for both the environmental and economic scenarios. Thus the process of converting plastics to fuel has now turned the problems into an opportunity to make wealth from waste. The conversion of oil from plastic has uses. first of all oil produced can be used as a fuel for domestic purpose of pollution caused due to the waste plastics materials can be minimized. Plastic in the place is manufactured from natural gas specifically from ethane source which is a constituent of natural gas. In this project work an attempt has been made to investigate the conversion of edible plastic waste materials into liquid fuel by using thermal pyrolysis process. The thermal pyrolysis unit is fabricated and evaluated for edible oil plastic waste material.

➤ SOLAR BASED FERTILIZER HARVESTING MACHINE

Vijay Palled, Kiran Ashok Kugunavar, Omkar Haibatti, Rohit V Sutar, Shivashankar Bhimappa Hosatot

Angadi Institute of Technology and Management, Belagavi

Abstract: The increasing demand for sustainable agricultural practices has driven innovation toward energy-efficient and environmentally friendly farm machinery. This project presents the design and development of a solar-based fertilizer harvesting machine that utilizes renewable energy to collect, process, and distribute organic or bio-fertilizer materials directly on the field. The system integrates photovoltaic panels to generate the required power, eliminating dependence on conventional fuel sources and reducing operational costs and emissions. The machine incorporates mechanisms for fertilizer collection, shredding or pulverizing (where applicable), and controlled dispensing to ensure uniform field application. A microcontroller-based control unit optimizes power distribution, monitors operational parameters, and enhances user safety and efficiency. Experimental testing demonstrates that the solar-powered system offers reliable performance under typical daylight conditions, significantly lowers energy consumption, and provides a sustainable alternative to traditional fertilizer handling methods. This solar-based fertilizer harvesting machine contributes to cleaner agricultural operations while promoting resource efficiency and improved soil management in rural farming environments. This paper provides a study of solar-powered fertilizer sprayers used in agriculture. The study reports the sprayer's design, materials, methodology, and results. The sprayer allows rural areas to limit their need for fossil fuel and human labor, improving convenience and efficiency while being more eco-friendly. Moreover, the paper mentions the components of the presented mechanical device, such as the solar panel, battery, motor, and nozzle, to list their technical definitions and areas of application. The purpose of this research is to ease the issues associated with the facial lifestyle and support modern-day challenges in farming.

➤ NEUMATIC POWERD NET THROWER

Prof. Rahul Sheri, Raj Ekanekar, Kiran Hiremath, Abhishek Sonagoje, Amwy Kadolkar A

Angadi Institute of Technology and Management, Belagavi

Abstract: A pneumatic-powered net gun is a non-lethal capture system designed to safely immobilize moving targets without causing physical harm. With growing applications in UAV interception, wildlife management, law enforcement, and industrial safety, compact and reliable capture technologies are increasingly required. This project presents the design, working principle, and performance analysis of

a pneumatic net launcher that deploys a weighted net using compressed air. Unlike explosive-based systems, the pneumatic launcher offers cleaner operation, lower noise, and improved safety, making it suitable for both indoor and outdoor use. The system stores compressed air in a pressure chamber, which is released through a fast-acting valve to propel the net through a barrel. The net, made from lightweight and high-strength materials such as nylon or Kevlar, expands during flight to entangle the target effectively. Key components include the air reservoir, solenoid valve, barrel assembly, projectile weights, and net deployment mechanism.

Experimental testing evaluated parameters such as firing range, projectile velocity, accuracy, net spread, and performance at different pressure levels. Results showed consistent and reliable net deployment for short- and medium-range applications, with performance mainly influenced by air pressure, valve response time, and projectile mass. Safety analysis confirmed stable operation within regulated pressure limits. Pneumatic net launchers offer an effective, safe, and environmentally friendly solution for non-lethal capture in conservation, security, and defence applications.

➤ **CHARGING STATION FOR PORTABLE APPLICATION**

Prof. Krishnakumar Jere, Abhishek V Reddy, Sarvesh S Hulgi, Akash P Bhise, Ahmed A Pathan

Angadi Institute of Technology and Management, Belagavi

Abstract: The growing demand for clean, reliable, and portable power solutions has increased the importance of renewable energy-based charging systems. This project focuses on the design and development of a Multipurpose Hybrid Renewable Energy Charging Station for portable applications, which integrates multiple renewable energy sources to ensure uninterrupted power supply. The system primarily combines solar energy and wind energy, supported by a battery storage unit, to charge portable devices such as mobile phones, laptops, LED lamps, power banks, and small electronic gadgets. The hybrid approach improves energy availability by utilizing solar power during daytime and wind energy during low-sun or night conditions. An efficient charge controller manages power flow, prevents battery overcharging and deep discharge, and enhances system safety. The charging station is designed to be compact, lightweight, eco-friendly, and cost-effective, making it suitable for remote areas, disaster management, outdoor activities, rural electrification, and emergency power needs. This portable hybrid charging station reduces dependence on conventional fossil-fuel-based power sources, minimizes carbon emissions, and promotes sustainable energy utilization.

➤ **WIRELESS CONTROLLED WATER JET FLOOR CLEANING MACHINE USING SOLAR POWER**

Prof. R. H. Angadi, Amareshwar K Kavadimatti, Devaraj Patil, Govind V Kulkarni

Angadi Institute of Technology and Management, Belagavi

Abstract: This paper focuses on the design and development of a Wireless Controlled Water Jet Floor Cleaning Machine powered entirely by solar energy. The system is developed to reduce human effort, improve cleaning efficiency, and minimize electricity usage in public and industrial floor-cleaning applications. The machine operates using ESP8266 wireless transmitter and receiver modules, which provide remote control of the movement and water-spraying mechanism. The cleaning process is carried out by a 12V DC water pump delivering 5 LPM discharge, supplying water to fine jet nozzles that create a high-pressure spray for effective cleaning. The motion of the machine is achieved through 12V DC gear motors, enabling smooth navigation on different floor surfaces. A 10W solar panel along with a rechargeable battery powers the entire system, making it a self-sustaining and eco-friendly cleaning solution. The prototype successfully demonstrates the feasibility of using renewable energy and wireless technology in floor-cleaning applications.

The proposed system is low-cost, portable, energy-efficient, and suitable for locations such as hospitals, malls, railway platforms, industries, and large commercial spaces. It provides a modern alternative to traditional manual cleaning methods by integrating automation, wireless control, and green energy.

➤ **SMART FOOD PELLETIZING MACHINE FOR AQUACULTURE**

Prof. Vijay Palled, Anup S Chikkodi, Meerasab Pendari, Prajwal Telasang, Sachin Kumbar

Angadi Institute of Technology and Management, Belagavi

Abstract: The Smart Feed Pelletizing Machine for Aquaculture is designed and developed to produce uniform, high-quality pellets essential for efficient fish farming. The machine integrates mechanical and power transmission components to convert raw feed material into compact pellets suitable for aquaculture feeding systems. It incorporates a 1 HP three-phase motor, belt-and-pulley power transmission, a 25 mm mild steel shaft, and a 300 mm diameter drum equipped with knurled rollers for compression and extrusion. The motor drives the main shaft through a belt arrangement connecting a 50 mm motor pulley to a 300 mm shaft pulley, providing adequate torque reduction and controlled rotational speed. The drum houses rollers that press and grind the raw feed mixture, forcing it through 6 mm drilled holes in a thick base plate to form pellets. A spreading plate attached to the rotating pulley ensures uniform distribution and collection of the pellets. This pelletizing system is designed using

standard mechanical components like bearings, bushes, tube frames, and sheet-metal structures, ensuring durability, ease of fabrication, and low maintenance. The machine improves feed processing efficiency, reduces manual labour, and produces consistent pellet size, contributing to better feed utilization and enhanced aquaculture productivity.

➤ **DESIGN AND FABRICATION OF SOLAR POWERED WASTE OIL SKIMMING BOAT**

Prof. Sujit Sali, Maajid Z Shaikh, Majeed Z Shaikh, Mallikarjun I Alabal, Shrishail S Hiremath

Angadi Institute of Technology and Management, Belagavi

Abstract: An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially the marine ecosystem, due to human activity, and is a form of pollution. The term is usually given to marine oil spills, where oil is released into the ocean or coastal waters. An oil spill poses major threat to life in general. Our oceans are believed to be the earth's lungs. The ocean produces over half of the world's oxygen and absorbs 50 times more carbon dioxide than our atmosphere.

➤ **EFFORTLESS ROPE WAY DRIVE FOR INDUSTRY /AGRICULTURE**

Prof. Rahul Sheri, Veerappa Dyavanur, Umesh Kurahatti, Krishna P Sutar, Shrinivas Pattar

Angadi Institute of Technology and Management, Belagavi

Abstract: This project is to get possible solution for current chaos of transportation system in Surat. To provide pollution free, electric cable car transportation system. To get rid of traffic and nuisance of traffic. The idea is flexible enough that it can be provided in the normal traffic heavy road of any city area. We can design more comfortable and futuristic cable car or say cabin in which passengers travelling through one spot to another. It should be design for more passengers with more comfort ratio. A ropeway drive refers to the propulsion mechanism in aerial cable or ropeway systems used for transporting passengers or goods along suspended cables. These drives typically involve motorized systems that pull haul ropes or directly engage track ropes to move cabins efficiently over varied terrain. Engineering abstracts often highlight innovations in friction-based clamping, chain-driven propulsion, or energy-efficient electric motors to ensure safety and reliability.

➤ **DESIGN AND FABRICATION OF INDOOR AND OUTDOOR ATTACHMENT FOR HANDICAP WHEEL CHAIR**

Prof. Krishnakumar Anil Jere, Darshan Chapagaonkar, Kumarswamy V Kalyankar, Bagu Kolapati, Sahil Suresh Chougule

Angadi Institute of Technology and Management, Belagavi

Abstract: The project “Design and Fabrication of Indoor and Outdoor Attachment for Handicap Wheelchair” focuses on developing a multifunctional accessory system that enhances mobility, safety, and comfort for wheelchair users across diverse environments. Conventional wheelchairs often face limitations when transitioning between smooth indoor surfaces and uneven outdoor terrains. To overcome these challenges, this project introduces an innovative attachment that can be easily fixed to a standard manual wheelchair, providing adaptability for both indoor maneuverability and outdoor stability. The attachment integrates features such as a quick-release detachable front-drive mechanism, shock-absorbing wheels, adjustable support frames, and an ergonomic locking system. These components collectively reduce physical strain on the user, improve traction on various surfaces, and ensure seamless movement through narrow indoor spaces.

The design emphasizes lightweight materials, cost-effectiveness, and user-friendly operation, making it suitable for daily use. This project aims to empower differently-abled individuals with increased independence, extended mobility, and improved quality of life by offering a practical solution that bridges the performance gap between indoor and outdoor wheelchair use.

TO STUDY AND REDUCE THE BREAK DOWN HOURS OF HIGH-PRESSURE MOULDING MACHINE USED IN FOUNDRY INDUSTRY

prof. v. sushanthkumar, Ratan sheelavant, Omkar khasbagh, Swadeshkumar swain, Bikasmurty bhandi
Angadi Institute of Technology and Management

Name of the Company:

VICTOR ENTERPRICES
(Manufactures of Graded C.I Casting and Components)

Abstract: High-pressure moulding machines are widely used in the foundry industry for producing high-quality moulds at high production rates. However, frequent breakdowns of these machines lead to increased downtime, reduced productivity, and inconsistency in mould quality. In the present study, a high-pressure moulding machine experiencing recurrent failures was systematically investigated to identify the underlying causes of breakdowns and to reduce breakdown hours.

The study focuses on understanding the working principle and operational parameters of the machine, with particular emphasis on pressure-related issues, component wear, and operational inefficiencies. Breakdown data and maintenance records were analyzed to identify major failure modes and their impact on production efficiency and mould quality. The effect of breakdowns on downtime and overall machine performance was evaluated.

Based on the analysis, appropriate corrective and preventive measures were implemented, including improvements in operating practices, maintenance scheduling, and component condition monitoring. The effectiveness of these actions was assessed by comparing machine performance before and after implementation. The results indicate a reduction in breakdown hours, improved machine reliability, enhanced mould quality, and increased productivity. This study demonstrates that systematic breakdown analysis and targeted corrective actions can significantly improve the performance and reliability of high-pressure moulding machines in foundry applications.

Problem Statement: The high-pressure moulding machine used in the foundry industry was experiencing frequent breakdowns, resulting in increased downtime, reduced productivity, and inconsistency in mould quality. These breakdowns were mainly related to pressure fluctuations, component wear, and operational issues. In this work, the causes of breakdown were systematically studied, analyzed, and addressed through appropriate corrective actions. The objective of this study is to analyze the breakdown patterns and implement measures to reduce breakdown hours, thereby improving the performance, reliability, and productivity of the high-pressure moulding machine.





VICTOR ENTERPRISES

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11/11/2025

PROJECT COMPLETION CERTIFICATE

This is to certify that Omkar .S. Khasbag (2AG23ME433), Ratan .R. Sheelavant (2AG23ME440), Swadeshkumar .R. Swain (2AG23ME454), and Bikasmurty .R. Bhandi (2AG23ME412), students of Angadi Institute of Technology and Management, Belagavi, have successfully completed a project titled " TO REDUCE BREAKDOWN HOURS (HPM) MACHINE " at VICTOR ENTERPRISES as part of their academic requirements under Visvesvaraya Technological University, Belagavi.

The project was completed under the supervision of Assistant Professor V. Sushanthkumar (Internal guide) and Mr. Sandesh Tupe (Industry guide) during the period NOV 2024 to NOV 2025 . During this time, the students demonstrated strong technical abilities, professionalism, and dedication to their work.

We wish them continued success in all their future endeavours.

For, Victor Enterprises.

Sandesh Tupe
Deve Engg
Authorized Signature



ALUMNI WORDS:

FROM CAMPUS TO CAREER (MECHANICAL ENGINEERING)

- “Mechanical Engineering is a field where learning never stops. The problem-solving mind set and teamwork developed during college helped me grow professionally.”

--Mr. Vijaykumar .K

Trainee Engineer, Nirani Sugars

- “My journey from campus to career was smooth because of the strong technical foundation and discipline I learned as a Mechanical Engineering student. It prepared me to handle real challenges on the shop floor.”

--Mr. Chetan Yavagal

Trainee Engineer, Nirani Sugars

- “The projects and workshops during my campus life helped me understand how theory connects with industry practices. Mechanical Engineering opened doors to diverse career opportunities.”

--Mr. Harsh Patil

Trainee Engineer, POLYRUB

- “Mechanical Engineering taught me how to think logically and solve real-world problems. The practical exposure and fundamentals I gained during my college days still guide me in my professional career.”

--Mr. Sukhanand Desai

Graduate Trainee Engineer, PIAGGIO Vehicle PVT.LTD

- “During my first year in the industry, I struggled to convert drawings into workable designs. The basics of machine design and CAD that I learned in college helped me gain confidence on live projects.”

--Rohan Kawari

Aques, Belagavi

- “Handling production targets and breakdowns was challenging initially. My experience in workshops and manufacturing labs helped me understand machines and processes quickly.”

--Siddarth Desai

Zealwise Technology , Pune

- “During our initial days in industry, we realized that hands-on skills, understanding of machines, safety practices, and teamwork are just as important as theoretical knowledge. Challenges on the shop floor and in project execution taught us patience, responsibility, and problem-solving”

--Mahaning Gokak

K-Nest Aluform Pvt, Ltd,Pune

- “To our juniors, we strongly advise making the best use of laboratory sessions, internships, industrial training, and final-year projects. Develop technical skills, learn relevant software tools, improve communication, and never hesitate to ask questions. Marks are important, but skills and attitude define long-term success.”

--Mohammad Y.Tondikhan

Sulzer India Pvt Ltd,Pune

Mechanical Engineering offers endless possibilities—from design and production to automation, energy, and research. With strong fundamentals, practical exposure, and continuous skill development, students can confidently transform their campus learning into successful careers.