



Triumph of Team Robo Forge

"Engineered with intention. Executed with heart."

Date : 08th November 2025

Place : Karnataka Law's Society Gogte Institute of Technology, Belagavi, Karnataka.



Team **Robo Forge** participated in the **ASME Iterative Additive Manufacturing 3D Challenge (IAM3D)** as part of **ASME EFX KLSGIT**, held on **08 November 2025**. The challenge was centered around designing and fabricating a fully 3D-printed Resource Collecting Rover capable of navigating an arena and retrieving resource units placed across the field.

The Team Consists of 15 members from various engineering branches, i.e. Mechanical, Information Technology & Electronics, lead by Team Captain **Mr. B. Hemanth Gupta** who's dedication & determination gave team what it needs to secure the Runner-up place the very first time participating in this challenge.

Also **R. Sai Karthik** – Electronics and Control Systems lead, **K. Akash** – Team Vice Captain, **K. Sai Shivani** – Treasurer, **A. Someshwara Kartheek** – Design Lead, and all the team members working with commitment & collaboration have made this victory possible.



The team approached the challenge with a strong emphasis on additive manufacturing and mechanism-oriented design. Drawing inspiration from excavator systems used in material handling, the rover was built with three major subassemblies: a track-based mobility system, a rotating upper platform, and an excavation cup designed for picking and placing resource units. All mechanical parts were 3D-printed using PLA and TPU, selected based on strength, flexibility, and print reliability.

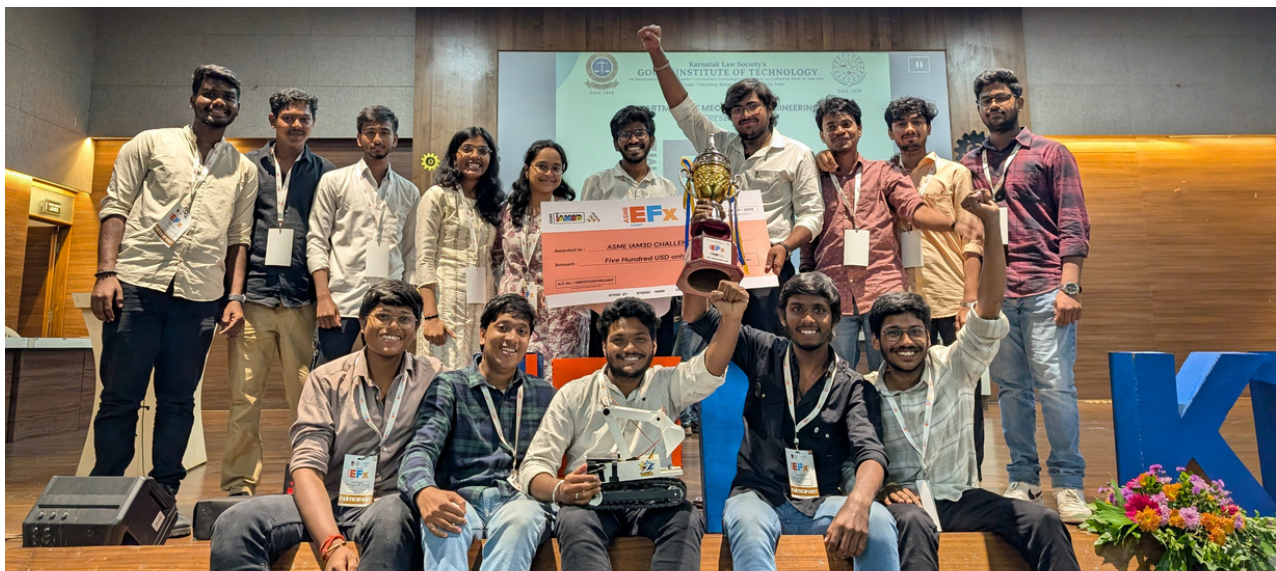
Design development and validation were carried out using:
SolidWorks for 3D modeling and motion analysis
ANSYS for structural strength evaluation

The rover was controlled using a Skydroid 8-channel transmitter and receiver, supported by motor drivers and DC motors to enable coordinated movement and excavation actions. The system was tested across different terrain patterns and load scenarios to achieve reliable operation during the event runs.

During the competition, the rover performed consistently in navigating the arena and collecting resources as intended. One engineering challenge encountered was heat accumulation in the motor drivers during prolonged operation, which affected efficiency in later rounds. This issue has been recognized as an opportunity for revision in future iterations through improved cooling arrangements and component placement.

Despite being a first-time entry into this challenge, Team Robo Forge secured 2nd Place, demonstrating strong teamwork, problem-solving, iterative refinement, and effective utilization of additive manufacturing processes. The experience provided valuable learning in real-world performance tuning, rapid prototyping, and system-level integration.

We would like to express our sincere gratitude to our Faculty Coordinator – **Dr. P. V. S. Subhashini** for her guidance throughout the project, and to our Head of Department – **Dr. T. Ramamohan Roa** and Principal **Dr. S. V. Ramana** for providing us the opportunity and support to participate in this event. We also thank the faculty members, lab staff, and peers who assisted us during the design, printing, and testing stages. Lastly, we convey our appreciation to the **ASME EFX KLSGIT** organizing team for hosting this platform and enabling teams to learn, collaborate, and demonstrate engineering creativity.



The following Students have represented Vasavi College of Engineering as Team Robo Forge at ASME EFX KLSGIT, Belagavi, Karnataka.

S.NO	NAME	ROLL NO	YEAR	BRANCH
1	B.Hemanth	1602-22-736-047	4	Mechanical
2	A.Someshwara kartheek	1602-22-736-029	4	Mechanical
3	R.Sai Karthik	1602-22-736-308	4	Mechanical
4	B.Anish Kumar	1602-22-736-002	4	Mechanical
5	K.Akash	1602-23-736-003	3	Mechanical
6	Gnana Chaitanya	1602-23-736-012	3	Mechanical
7	Anand babu	1602-23-736-006	3	Mechanical
8	Hassan Shareef	1602-23-736-021	3	Mechanical
9	M.Manoj	1602-23-736-020	3	Mechanical
10	K.Sai Shivani	1602-23-736-030	3	Mechanical
11	V.V.S.S Ganesha	1602-24-736-057	2	Mechanical
12	L.Venuka	1602-24-748-019	2	CSE-AIML
13	T.Hrithik	1602-24-737-016	2	IT
14	P.Nishanth	1602-24-737-030	2	IT
15	K.Anush	1602-24-737-005	2	IT