



Late Shri. Vishnu Waman Thakur Charitable Trust's

VIVA Institute of Technology

Approved by AICTE, New Delhi, DTE, Government of Maharashtra, Affiliated to University of Mumbai
At- Shirgaon, Post-Virar (E.), Tal-Vasai, Dist-Palghar – 401 305.

Tel.: 777 000 2544 • Website : www.viva-technology.org

E-mail: contact@viva-technology.org / principalvit@vivacollege.org

Event Name:	SAE Aero Design
Location:	MEXICO
Participating Team Name:	TEAM ARSYA
TEAM No:	015
Date:	March,2018
Time:	11.00 Onwards

Department of Mechanical Engineering

Programme Summary/Details:

Team ARSYA, representing VIVA Institute of Technology, proudly participated in the prestigious SAE Aero Design 2018 event held in Mexico. The team competed in the Regular Class category, showcasing their exceptional skills and engineering prowess. The registration for this esteemed event was successfully completed on August 26, 2018.

Following the completion of the registration process during the winter semester of our bachelor's course, the members of Team ArsyA embarked on the design phase of our RC aircraft project. This phase commenced with careful adherence to the instructions outlined in the SAE Aero Design rule book, which was provided to us in September 2018. The goal is to construct a military aircraft which will lift an internal load on the fuselage and external load on the wing. Selecting a configuration of the internal load and hard point and maintains specific distance between the hardpoint with respect to span of the wing will help us to gain a better score in the competition. To ensure compliance with all the requirements and guidelines specified by the SAE Aero Design team, our members diligently utilized software tools such as SolidWorks for 3D design and ANSYS for simulation purposes.

Upon the completion of the design and analysis phase, our team carefully evaluated the various design options and selected the most preferred design. With the design finalized, we proceeded towards the manufacturing process of our RC aircraft project.

The manufacturing process began in October 2018, marking an important milestone in our project timeline.

Adopting a two-way manufacturing process, we were able to eliminate necessary manufacturing glitches at a very cheaper cost. Feedback from rudimentary model was critically examined and resolved, a cycle that eventually laid to a craft – friendly model. To ensure the highest level of precision and quality, our team followed industry-standard manufacturing practices and utilized advanced manufacturing techniques. We employed a range of specialized tools and machinery to fabricate the different components of the aircraft, adhering closely to the specifications outlined in the design.

The initial CAD model was projected on a mountboard and was trimmed accordingly. Finely sanding every single unit, individuals were glued using mild epoxy adhesives to replicate the CAD model generated. Since entire assembly followed the same steps and procedures as final model, the manufacturing team had their hands on experience and exposure to fabricating delicate and intricate assemblies.

The manufacturing process involved various stages, including material selection, cutting, shaping, and assembly. We utilized cutting-edge manufacturing technologies and techniques to ensure accuracy



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and efficiency in each step. Our team placed great emphasis on maintaining strict quality control measures throughout the manufacturing process to ensure the integrity and reliability of the final product.

After meticulous manufacturing and assembly, our aircraft was completed by the end of February. The team diligently carried out all necessary preparations, ensuring that every component was in place and all systems were functioning properly. We were eager to witness the culmination of our efforts in the first flight test.

On 22nd January, 2019, at the prestigious Mahalakshmi Racecourse, Team Arsyia conducted the highly anticipated inaugural flight test. The flight test was conducted under the expert supervision of experienced pilot Tushar Pethe, whose expertise and guidance were invaluable to the success of the test.

With great excitement and anticipation, we witnessed the aircraft gracefully take off for its first flight. It was a moment of immense pride and satisfaction for the entire team as we observed our hard work and dedication come to fruition. The successful flight test marked a significant milestone in our journey towards participating in the SAE Aero Design 2018 event.

After the successful completion of the flight test, the team promptly compiled and submitted the comprehensive design report to the relevant authorities on February 13, 2019. In parallel, preparations were underway for the team members to obtain visas to attend the competition. Team Arsyia achieved a 10th Rank in technical presentation at the international event, SAE Aero Modelling, held in Mexico.

In the conclusion, we believe that this entire process of designing the aircraft compiling to strict rules laid by SAE helps us grip together theoretical and practical aspects of aircraft design. It helped us explore various specialization fields like Structural Design, Computational Fluid Dynamics, Wood Working, etc. It not only gave students a hands-on experience with hand tools as well as advanced software's, but also gave them an opportunity to interact with industrial tycoons in the field. Designing of aircraft was followed by rigorous quality conformance techniques which again opens new realms for students. Testing of parameters and troubleshooting faults on ground and mid-air were as thrilling as they sound.

Finally, we a group of rookie students learned a process of developing aircrafts from scratch understanding various business and industrial factors. We appreciate SAE International for making this opportunity open to all aspiring aer scientists.

The team expressed their gratitude to the management of VIVA Institute of Technology, the principal, and Mrs. Niyati Raut for their support and motivation. They also thanked their sponsors for their generous support and guidance, which played a vital role in their success.



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Photos:





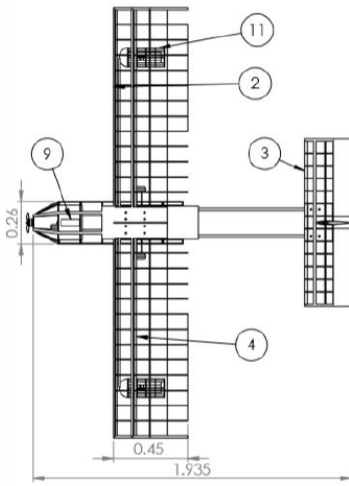
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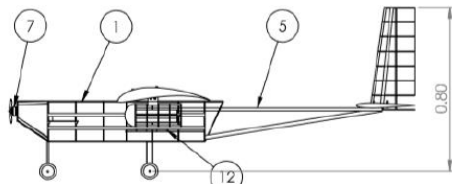
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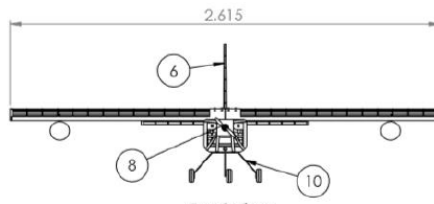
Top View



ITEM NO.	PART NUMBER	QTY.
1	Fuselage	1
2	Wing	1
3	Horizontal Stabilizer	1
4	Aluminium Pipe	1
5	Square Pipe	2
6	Vertical Stabilizer	1
7	Motor	1
8	Propeller	1
9	Battery	1
10	Landing Gear	1
11	External Bay	1
12	Internal Bay	1



Side View



Front View

TEAM NAME	ARSYA		
TEAM NUMBER	15	SCALE	1:20
COLLEGE NAME	VIVA INSTITUTE OF TECHNOLOGY		