

# EDHITHA UNMANNED AERIAL SYSTEMS



## Intro

Edhitha Unmanned Aerial Systems is a multidisciplinary student organization from the M S Ramaiah Institute of Technology in Bangalore, India. Our team specializes in the design and manufacture of tactical unmanned aerial vehicles (UAVs) and autonomous drones specifically built for search and rescue missions. We are proud to have over a decade of experience working with autonomous drone technology

## Events



Annually, our team participates in the "AUVSI Student Unmanned Aerial Systems" (AUVSI SUAS) competition, organized by the AUVSI Foundation and held in Maryland, USA.

During the competition, we are tasked with completing a variety of challenges including mapping and delivering Unmanned Ground Vehicles (UGV) using fixed-wing planes or multirotor. The team started its Journey SUAS in 2011 and its all-time record is as shown:



**2015:** Our club stood 1st amongst 55 teams

**2016:** 5th place internationally (highest-ranked team in Asia)

**2017:** 15th place internationally

**2018:** 10th place internationally

And so on...

**2022:** "Dawn Jeager tenacity" award.

**2023:** "Just Joe Sportsmanship" award, 2nd in Mission Demonstration.



**MIC Regional Meet:** Team Edhitha was proud to participate in the Ministry of Education's Innovation Cell (MIC) Regional Meet 2022, held at Reva University on August 16th. As part of the event, our team showcased our technology in the innovation category of the summit.



**Pradarshana 2023:** Edhitha took part in Pradarshana 2023, an open-day exhibition held at Ramaiah Institute of Technology. An initiative showcasing Innovation & enabling Start-up Culture, a great opportunity to display Edhitha's fleet of drones to the general public.



**Centuriton:** The Edhitha team had the opportunity to participate in Centuriton, a national-level hackathon held at MSRIT. The Edhitha team put their automation and machine learning skills to use by getting shortlisted through the online round and later, after 36 hours of hard work, they were able to automate a drone with an ML algorithm and demonstrate it on full mission.

# Outreach



**Kannada Rajyotsava:** Edhitha, was honored to be invited to the prestigious Kanda Rajyotsava. The chief minister of Karnataka Honorable Basvaraj Bommai himself had the privilege of utilizing of hoisting the state flag through our drone, which served as a demonstration of our advanced payload mechanism to the entire nation.



**Karunada Habba:** Team Edhitha introduced a novel concept of hoisting the Karnataka flag using a drone in the presence of Sri. NS. Nandeesh Reddy, BMTC Chairman. The event provided an opportunity for the team to interact and gain knowledge from various industry professionals, investors, and an ex-Airforce officer who had experience working with UAVs.



**Milana 2022:** Team Edhitha UAS represented MSRIT's innovative endeavors at the Annual Alumni meet 2022 - Milana. The event served as a platform for seminal networking and exchange of the team's professional ideas with some very smart and successful alumni of the institution.



## Our Sponsors



## Drones



5Kg payload Drone



2 Kg payload Drone



Imagery testing Drone



Algorithm testing Drone

# Technical Expertise.



## Structure and Propulsion system

We are in the process of designing and constructing an in-house carbon fiber quadcopter capable of carrying a payload of up to 5 kg. We will be evaluating the reliability and performance of various propulsion system configurations and their setup. Additionally, custom lithium-ion battery packs are being manufactured to meet the specific power consumption requirements of the quadcopter

## Payload systems

We have developed various mechanisms, including a winch drop, frictioned pulley, and parachute drop, to safely and efficiently deliver payloads from a height of 100m to 150m

## Navigation and Electronics system

We have successfully mastered autonomous mission capabilities utilizing multiple waypoints and obstacle avoidance techniques, such as geofencing and lidar technology. We have also conducted extensive testing of communication protocols between our onboard computer and flight controller using MAVLink. Additionally, we are in the process of upgrading our system with stereo vision cameras to enhance dynamic obstacle avoidance capabilities.

## Imagery and cyber systems

We possess extensive experience in the selection of cameras and lenses, including the evaluation of sensor size, Ground Sample Distance (GSD), and resolution. We regularly process batch captured images and use them to train models for image segmentation, which allows for the detection of shapes, colors, and sizes. Additionally, we work with custom datasets to optimize the accuracy of our image analysis while minimizing the occurrence of false positives.

## Arsenal



2011



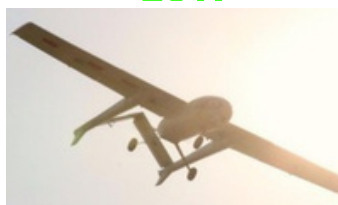
2012



2013



2014



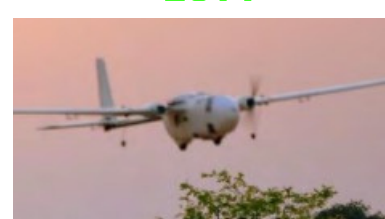
2015



2016



2017



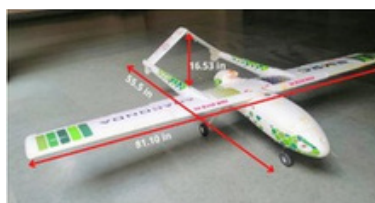
2018



2019



2020-21



2022



2023

# Sponsorship Levels



  
**Diamond**  
**Up to \$2000**  
**(INR 1,50,000)**

- All benefits of **PLATINUM**
- Promoted as the year's **Title Sponsor**
- Exclusive logo on the wings of **ALL UAVs in our fleet**
- **Product and service endorsement** at technical events
- Exclusive Outreach by **tagging** the company in all our posts & adding the **company link** in our **bio**, for **ONE SEASON**

  
**Platinum**  
**Up to \$1000**  
**(INR 75,000)**

- All benefits of **GOLD**
- Promoted as **Technical Sponsor**
- Logo on merchandise and website
- Logo on the wings of **ANY ONE UAV**
- Promotion on social media

  
**Gold**  
**Up to \$500**  
**(INR 37,500)**

- Promoted as **Equipment Sponsor**
- **Sponsor Logo** on social media

## Contact Us

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