



Team DTU-AUV

Sponsorship Brochure





Team DTU AUV with Prof. R. K. Sinha and Vice Chancellor Dr. P.B. Sharma

About Team DTU AUV

----X

The **Delhi Technological University** (formerly Delhi College of Engineering) has a group of students who have been working on an innovation project called the **Autonomous Underwater Vehicle (DTU-AUV)** since 2007. The team consists of undergraduate students from multi-disciplinary background working under the guidance of Faculty Advisor Dr. Ajeet Singh, Dept. of Applied Physics. The team depends on the generous support of sponsors to design and develop an AUV of Industrial standards.

“

Achievements

- Award “*Appreciation*” at Robosub 2007, USA
- Award “*Most Improved Mechanical Design*”, Robosub 2008, USA
- 6th at Static Judging, 9th Overall, ROBOSUB 2008
- 1st Position NIOT SAVe 2009, Chennai
- Exhibit at DefExpo 2010, New Delhi
- Reached Semifinals-Top 15 out of 32, Robosub 2011, USA
- Technical paper at IEEE ICMA 2011, China
- 1st Position at International Mobility Conference, Delhi

”

Vehicle 5: Apsara*

-----X



Dimensions: 0.95x0.95x1.2 m – Body
0.390x0.240 m – Hull

Weight: 19.7 Kgs – Dry Weight
600gms – Positive Buoyancy

Speed :1.8m/s (3.8 Knots)

Endurance: 6.2 Hours in Idle mode
1.5 Hours in Full load

Features:

Onboard Image processing
Autonomous Navigation
Acoustic Sensing and Chemotaxis
Pipeline & Object Detection
Object retrieval with ARM
Autonomous Torpedo Aim and Launch

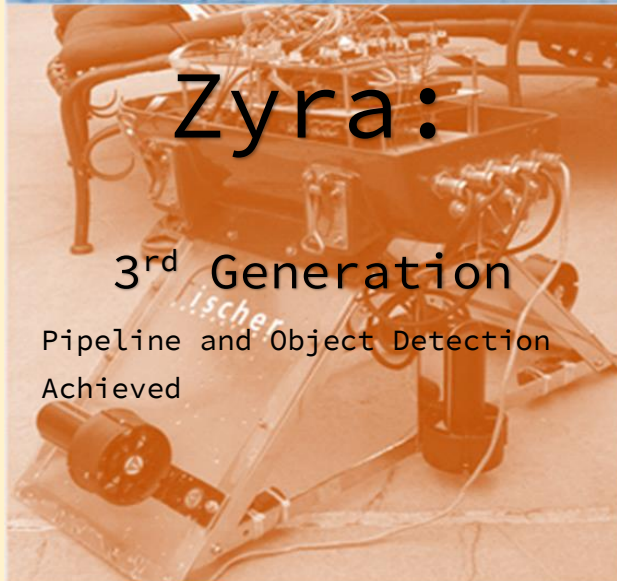
**Under Development*

Our Previous Vehicles



Onboard Image processing and Control systems achieved
Waterproof Hull and Buoyant Chassis achieved

VARUN: 1st Generation



Zyra:

3rd Generation

Pipeline and Object Detection
Achieved



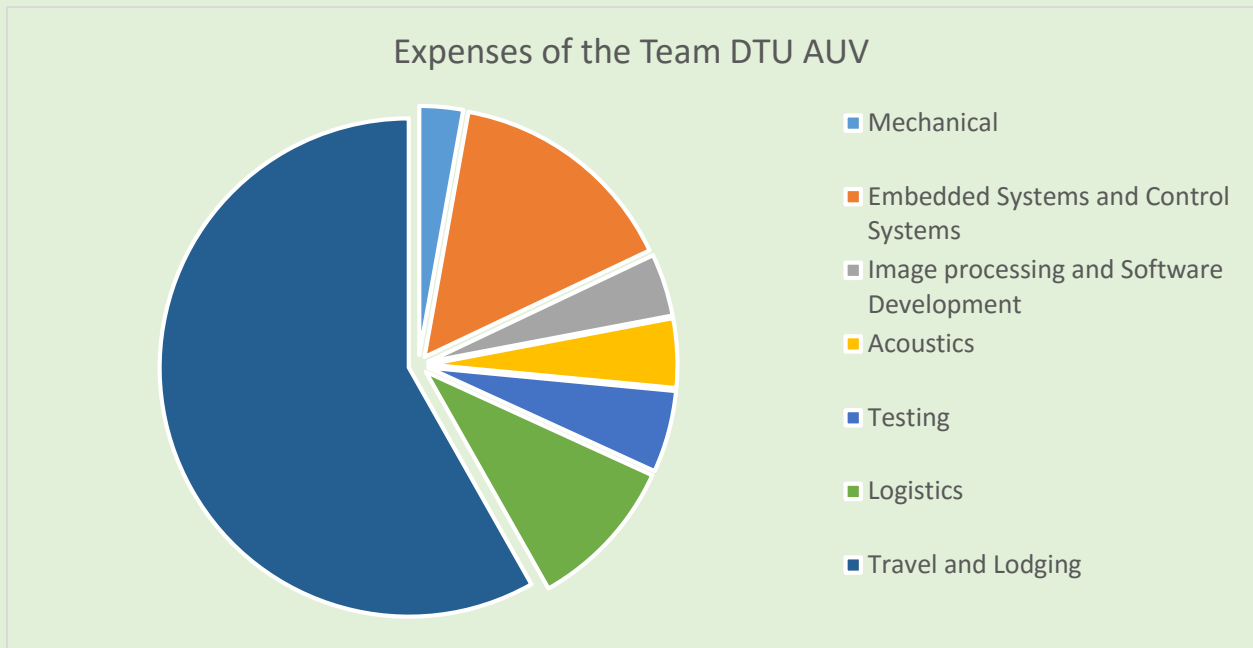
Zyra 2.0:

4th Generation

Basic Acoustic Sensing and
Gripper ARM developed

Previous generations of DTU AUV

We depend on the generous support of our sponsors and could not exist without it. We welcome monetary and in-kind donations to help support our endeavors in creating and improving our autonomous underwater vehicle.



Kindly refer to team Budget for details of our expenditure.

You can help us out in the following category:

- Monetary
 - Hardware Support
 - Software Support
 - Testing Facility
 - Technical guidance
 - Travel and Lodging (Competition held at San Diego, California)
 - Logistics
-

Prospective Benefits of Becoming a Sponsor

AUV is an emerging field in the world market with projected market of \$700 million in 2010 for civil applications alone (Source: Frost and Sullivan, Market Research).

Currently this field is dominated by few big corporations manufacturing primarily ROVs based in U.S.A and Europe. The market for completely autonomous vehicles is absolutely open and waiting to be explored.

- Supporting such projects provide technical companies a leading edge in an unexploited market like India. Thus our AUV becomes an Ideal investment for technical companies considering the advertisement opportunities too.
 - We will compete with this Vehicle at RoboSub Competition 2017, San Diego, California, U.S.A where top teams from around the world competes. It is telecasted live all over the world and gets huge media attention in the tech world.
 - Publicity at this competition gives our sponsors to introduce their company to the world's leading technical companies. It provides them the opportunity to interact with government personals and international researchers.
 - Sponsors showcase their company by promoting it with their logo on our vehicle, website and our other merchandises including but not limited to Team's official T- Shirt, Team posters and presentations.
 - Sponsors get media attention at worldwide technical Journals and magazines.
 - We are covered by National newspaper and News channels. We organize events and display our vehicle on college fests which gains publicity from college students all around Delhi. Further, we intend to showcase our vehicles at various expositions for wider public reach.
-

Sponsorship Packages

Bronze Sponsor	Silver Sponsor	Gold Sponsor
Logo with a link on our team website.	Logo with a link on our team website.	Logo with a link on our team website.
Logo on the team's official competition T-shirts.	Logo on the team's official competition T-shirts.	Logo on the team's official competition T-shirts.
Logo on submarine's hull.	Logo on submarine's hull.	Logo on submarine's hull.
Acknowledgement in some team activities.	Acknowledgement in all team activities.	Acknowledgement in all team activities.
	Second logo on well chosen space on vehicles hull.	Second logo on well chosen space on vehicles hull.
	Electronic and print media coverage.	Electronic and print media coverage.
		Logo and link on front page of website.
		Special mention in team activities.
		Mention in team's International and National Journal publications
		Invitation to be part of the team during the competition.

Sponsorship Type	Contribution Amount	Maximum No. of Sponsors
Gold Sponsor	10 lakhs - 6 lakhs	2
Silver Sponsor	6 lakhs - 3 lakhs	4
Bronze Sponsor	Up to 3 lakhs	6

- Precise terms and conditions for sponsorship are negotiable and can be agreed upon mutual basis
- First gold sponsor would also be eligible to name the vehicle with mutual consent.
- In case of any disagreement, preference would be given to the higher sponsor unless agreed otherwise beforehand.

Our Current Sponsors



Our Past Sponsors



YAMAHA





reduce it to \$5 (is that the RLV reused. The cor expendable. Ea payload soars. back after its r that scramjet re advanced meta craft that move off from the atr weathering hig atmospheric fri new alloys beir their use in scr: research will ir strategic metall place India in a includes the US Australia and E technology is ti



BUDDING GENIUSES

pose with their invention

Varn facts
 Can be used for oceanic explorations
 Can detect oil pipelines and mines
 Can also be used for spying on enemy ships and for underwater communications.
Height and width: 2.5 feet
Costs: Approximately Rs 50 lakh.
Funded by: The Ministry of Earth Sciences and the National Institute of Ocean Technology.

Chandra Rath facts
 Can be used for exploration of the moon's surface
Driven by: Humans
Special: Can be folded into a four-foot cube
Weight: 60 kgs
Made of: Mild steel
Total cost: Rs 1.25 lakh
Funded by: sponsors and students

Delhi engineering students win US award

A team of undergraduates of the Delhi College of Engineering (DCE) has bagged the 'Most Improved Design Award' for 2008 in a US-based tech competition organized to design a new-generation robotic submarine which can have a wider application in the defense field.

"The award is the first for any educational institute in the country," said R.K. Sinha, the head of DCE's Center for Fibre Optics Research, adding that overall the college stood ninth in the International Autonomous Underwater Vehicle Competition.

The robotic submarine codenamed 'vehicle for autonomous research and underwater navigation' is capable of diving to a predetermined depth, identify patterns and follow underwater pipelines using a unique machine vision.

Notably, DCE was the only team from India participating in the competition organized by the Association for Vehicle System International and the Office of the Naval Research, at San Diego. In all, about 40 teams representing well-known institutes from across the world took part in the event.

Aero

The Aero Ind largest inter bitions, will be year. Armamen countries, inclu Britain, Russia, Israel, Belgium, and the Nether Asia's premier : Nearly 330 c tries abroad an up their exhibit of the Biennial Exposition.

Under water and over the moon

Engineering studies are made more interesting with innovation and design. We tell you how the students of DCE got innovative and built a submarine and moon buggy

munications. It is 2.5 feet, both in height and width. The cost of building it is approximately Rs 50 lakh. The funds have come in from the Ministry of Earth Sci-

THE ECONOMIC TIMES News By Industry

Home **News** Markets Personal Finance Infotech Opinion Features Earth Services Classifieds

News By Company News By Industry Economy International Business Politics/Nation

Auto | Banking/Finance | Cons. Products | Energy | Ind'l Goods / Svs | Healthcare / Biotech | Jobs | Services | Media / Entertainment

Delhi engineering students win US competition award

11 Aug, 2008, 17:40 hrs IST, PTI

- Print
- Email
- Save
- Write to Editor

unitech GRANDE
 Premieres Two iconic luxury residential towers:
AQUA | TERRA
 Click here to explore a world of luxury

Notably, DCE was the only team from the country, organised by the Association for Vehicle System Naval Research, USA, at San Diego from July 29

In all, about 40 teams representing well-known i

Other stories in this section
 Rindra strikes gold, turns hottest iron



The Indian EXPRESS
 www.expresindia.com

City students win US award for submarine design

EXPRESS NEWS SERVICE
 NEW DELHI, AUGUST 11

A 10-MEMBER team of undergraduate students from the Delhi College of Engineering (DCE) bagged the 'Most Improved Design Award' for 2008, at the Inter-



छात्रों ने बनाया पानी चलने वाला रोबोट

♦ दिल्ली कॉलेज ऑफ इंजीनियरिंग के छात्रों ने बनाया पानी के अंदर रंग, आवाज, वस्तु की पहचान करने की क्षमता वाला रोबोट



International prize for DCE students' creation

Varun, only Indian entry at underwater vehicle competition in the US, won the 'Best Mechanical Design' and 'Longest Travel Award'

PALLAVI SINGH
 NEW DELHI, AUGUST 26

WHEN a group of first-year students from Delhi College of Engineering (DCE) approached the Department of Ocean Technology under the Union Ministry of Earth Sciences in 2005 with a project, they were told it was a bold proposal.

What the nine students wanted to build was a robot that could operate underwater without human intervention, carrying out repairs, exploring for oil, tracking pipelines, even locating treasures.

The DCE boys at San Diego.

After some hesitation, they got the sponsorship and technical guidance they sought. Their creation—the product of 18 months of work that went beyond their regular engineering studies—is a saucer-shaped craft called Varun, after the Indian sea god and as also an acronym for Vehicle for Autonomous Research & Underwater Navigation.

The crowning glory for all that work, often done at night, and hours of testing in swimming pools, came last month when Varun won the 'Best Mechanical Design' and 'Longest Travel

Autonomous underwater vehicle competition held by the Association for Unmanned Vehicle Systems International in association with US Office of Naval Research.

The event was held in San Diego, California. This was the only Indian entry among 28 participating teams from institutes like the Massachusetts Institute of Technology and University of Florida. They were the only undergrads in the competition.

Says Anshuman Nath Kar, who took part in the project, "The college's Autonomous Underwater Vehicle (AUV)

over the week, even during the vacations. We, with the guidance of teachers, studied new technologies, conducted several tests for cutting costs and applied several hardware and software solutions."

Periodic reports were sent to requisite bodies and a system of internal checks and mutual supervision was carried out.

"Checks happened to make sure that everybody gave their 100 per cent effort to the project. The vehicle can go underwater and take photographs. It can be used for various underwater purposes like oil exploration. But

ents could design such a vehicle or not," says Prof S Majhi, who supervised the work with Dr R K Sinha and Dr D Goldar.

The team is already thinking of newer technologies, better programming and faster computing. "It is all about perfecting what we have developed this year. We are optimistic about beating the heavyweights who have been coming to the competition for the last ten years," says Kar.

Varun already has a fan: Union Science and Technology minister Kapil Sibal will visit DCE campus to see the vehicle





Thank You



Contact Us



Phone

Shubham Garg:

9873396449

Nikunj

Sabharwal:

9711009159



Email

auv@dce.edu



Website

auv.dtu.ac.in



Postal Address

Dr. Ajeet Kumar

IWTF-11, Inclined wing, Third
floor

Applied Physics Department
Science Block

Delhi Technological University
Shahbad, Daulatpur

Main Bawana Road

Delhi-110042, India