CAREERS 360
A Career is a Life Engineering

Type Here To Search & Press Enter

Login/Register

Indian Institute of Technology, Bombay

Establishment Year:	1957
Location:	Mumbai
Website:	http://www.iitb.ac.in
Fees(in lakhs):	

Write a review (http://www.engineering.careers360.com/modal_forms/nojs/login?
destination=node/3218/review)

Follow (http://www.engineering.careers360.com/modal_forms/nojs/login?
destination=node/45735&nid=3218&flag=bookmarks)

4906

Like   Share   9   g+1   0

Home (/indian-institute-of-technology-bombay)

About (/indian-institute-technology-bombay/about)

Courses (/indian-institute-technology-bombay/branches)

Gallery (/indian-institute-technology-bombay/images-videos)

Discussions (/indian-institute-technology-bombay/discussion)

Article (/indian-institute-technology-bombay/articles)   More

IITians eye in the sky

By: Shiphony Pavithran Suri   *Updated On:* 06-Mar-2014, 08:45   Like _ Share   9   g+1   0

ONLY a few of you would have missed '3 idiots', a huge Bollywood hit. Do you recall that mini quadrotor helicopter, unmanned Aerial Vehicle (UAV) that zapped all viewers? This was the early prototype of NETRA, a lightweight UAV designed by five alumni of IIT Bombay, who founded ideaForge Technology Pvt. Ltd, a hardware company. India's first mini UAV, has been aptly named NETRA, meaning 'eye' in Sanskrit. This 2 kg drone flies over a distance of 2.5 kilometres, captures video footages and easily lands on the ground. It can be deployed anywhere in just about seven minutes. Hovering in the sky, the UAV transmits real time inputs to the controlling team.

The world's smallest and lightest commercial autopilot developed in 2009 weighed just 10 grams. Six grams less than the nearest competitor.Ankit Mehta shares, "NETRA is easy to use, which helps you look beyond your reach, ultimately the unseen is seen!" Other co-founders, AshishBhat (29), Rahul Singh (29), Amardeep Singh (28) and Vipul Joshi (31) agree. More over, ideaForge is the only indigenous UAV manufacturer in the country. All of the domestic competitors import major sub-systems, critical to UAV's. The team shares, "There are Indian firms making UAV's but they are able to optimize the system by only a few parameters at a time leading to lower reliability and performance." Housed in Navi Mumbai, the 5500 sq. ft company has some 30+ employees who are into R&D, production, operations and marketing.

In the limelight

ideaForge bagged the country's first mini UAV tender, floated by the Indian Army for 20 units. "We won it against global competitors, such as Israeli, American, European and even domestic firms, while being about 3-4 times more cost effective as compared to other qualifying contenders," says Rahul.

"I was an enabler, who did not stand in their way as they engaged themselves

in several antics in my lab to which they had round-the-clock access"

Prof. C Amarnath, formerly with IIT Bombay

Today UAV Netra's application is widely used for multiple surveillance activities, from anti-terror operations, border management, crowd monitoring to disaster management. Recently ideaForge trained paramilitary force ITBP to fly UAV to trace survivors in flood-hit Uttrakhand while CRPF deployed it to track anti-naxal operations in Chattisgarh. Ahmedabad turned out to be the first city to use UAV for crowd management during JagannathRathYatra in 2013. Paramilitary forces, state police departments, armed forces and DRDO have been their primary customers ever since they hit the market.

Idea brainstorming

Team ideaForge traces the genesis of their idea to the formation of an innovation cell at IIT Bombay. "It was a similar drive to work on robotics which flocked us together," says Amardeep, who looks after marketing and product support. They attribute business success to their mentor Prof. C Amarnath who polished their skills. "I was an enabler, who did not stand in their way as they engaged themselves in several antics in my lab to which they had round-the-clock access," shares Prof.Amarnath who was formerly with IIT Bombay. The team spearheaded by Ankit had already implemented 20 physical bootstrapping projects, which gathered financial support from IITB that had immense trust on their output. They developed alternative energy products like hand-crank charger and a bicycle charger for mobile phones and data loggers among others.

SINE steps in

They registered the company in 2007 and got incubated at Society for Innovation & Entrepreneurship (SINE) at IIT Bombay. After prolonged ideation and development of products, they arrived at a consensus to focus entirely on quadrotor, as robotics was always top on priority. At SINE, they got a low-cost office space up to 200-600 sq. ft. with computers and other facilities. "They helped us by granting working capital loan, mentored us on framing business plan and finding seed investors. And for machinery support we got easy access at IIT labs," says Ankit.

Team ideaforge. From left Ankit Mehta, AshishBhat, Rahul Singh, Amardeep Singh and Vipul Joshi

DRDO's technology support

It was during an unmanned micro aerial development symposium in 2008 that the team was noticed by DRDO, which was focusing on unique customized solutions for the armed forces. Dr Alok Mukherjee, Joint Director, R&DE, who heads Robotics at DRDO Pune, handheld ideaForge to convert their design into a product. Mukherjee says, "I was amazed by their design, which flied well, but it was still in contraction stage. DRDO was willing to transfer technology to ideaForge." In 2011, anMoU was signed and IPR belonged to both of them. ideaForge only focused on unmanned vehicle technology and DRDO developed a ground control system for flying.

The Ground Control System rests in the hands of an operator and communicates with the UAV to pass on the intentions/instructions of the user to the UAV. User typically gives the GPS, which coordinates to the UAV and the UAV navigates to those locations on its own. The user can also control the payload/camera on the UAV in real time to get effective surveillance and reconnaissance feed. DRDO helped in optimizing the GPS to make it more convenient to operate in the field. "UAV is successfully tested everywhere from DRDO testing chambers, high or low temperature altitude, Leh to Andaman Nicobar region," says Mukherjee. The cost of the device is about Rs. 37 lakhs including taxes. For every sale, ideaForge has to give a royalty of 2% to DRDO. Recently, the duo made a UAV demo for Archaeological Survey of India, and other companies to make them aware of the operations.

"I was amazed by their design which flied well but it was still in contraction stage DRDO was willing to transfer technology to ideaForge "

Dr. Alok Mukherjee
Joint Director, R&DE
DRDO, Pune

Marketing challenges

In terms of reaching out to the market, the product is not widely available for commercial use. If the product is deployed with lack of regulation and guidelines, then it can be easily misused.

Since the product is mostly linked to government organizations as customers, the legal drafting is time-consuming. The team constantly conducts workshop on the product's application for potential customers. They can also train field staff to fully operate the system in just about two days.

Way forward

The company has so far made at least 50 UAVs. By next year, they plan to scale up their production to up to 100 UAV systems per year. They make revenues from product sales, sub-component sales, training and installation service. The video quality differentiates the product from others in the market, says

Ashish, explaining how their product stands out, "We offer on-board image stabilization, simultaneous video and image capturing, special de-fogging mode and even target tracking."

Global ambition
The other major global players in this space are Microdrones and Areyon Labs. But ideaForge maintains that their product has better competitiveness. "Our products are more user-friendly as compared to competition. In a recent tender's technical trials, we clocked a deployment time of less than 7 minutes as compared to 15 minutes of the nearest competitor," says a co-founder.

Now ideaForge has distributors in New Zealand and Australia. The young team dreams big as the global demand for UAVs is sure to go up.

About the incubator SINE, IIT Bombay, http://www.sineiitb.org/about.html (http://www.sineiitb.org/about.html),
Established 2004
Current Incubatee15
Graduated 25
Offerings Open for technology-based companies, infrastructure spread over 10000 sq.ft., can accommodate 15-17 companies; 300 sq feet office space to each company; Facilitate networking with professional resources, which include mentors, experts, consultants and advisors for the incubate companies
Events/Programmes Technoprenuer Promotion Programme

| Follow | Like | Share 9 | g+1 0 |

(http://www.engineering.careers360.com/modal_forms/nojs/login?
destination=node/45735&nid=45735&flag=bookmarks)

Related Articles

KIITEE 2014 Answer Key (/kiitee-2014-answer-key)

AIEEE: Experts answer your doubts/ queries (/articles/AIEEE-Experts-answer-your-doubts-queries)

Discussion Board

Sign In with Facebook (ht

client_id=124850590907726&redirect_uri=http%3A//www.engineering.careers360.com/fboauth/conn

or

Signin (http://www.engineering.careers360.com/modal_forms/nojs/login?
destination=node/45735)

or

Register (http://www.engineering.careers360.com/modal_forms/nojs/register?
destination=node/45735)

to post comment

0 Comments   careers360   Login

Sort by Best   Share   Favorite

Start the discussion…

Be the first to comment.

ALSO ON CAREERS360   WHAT'S THIS?

Yenepoya University Medical Entrance Exam 2014 Important Dates
4 comments • 16 days ago
sachin chetani — Abhishek_36_1 Yenepoya form has been released, check complete information about application form …

GGSIPU and AMU change entrance exam dates to avoid clash with CLAT 2014
1 comment • 16 days ago
rakshit — I reside in Delhi, sir can i apply for a specific participating institute under CLAT.

EAMCET 2014 Helpline Centres (HLC)
3 comments • 16 days ago

EAMCET Application Forms Available Now!
1 comment • 20 days ago

Sachin Chetani — phalguni upadhyay If you are
giving AIPMT only for AFMC admission then
you will be eligible for EAMCET 2014 …

boinapalli.murali — rocking life but not bad

✉ Subscribe   Ⓓ Add Disqus to your site