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INTELLIGENT

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Network 18

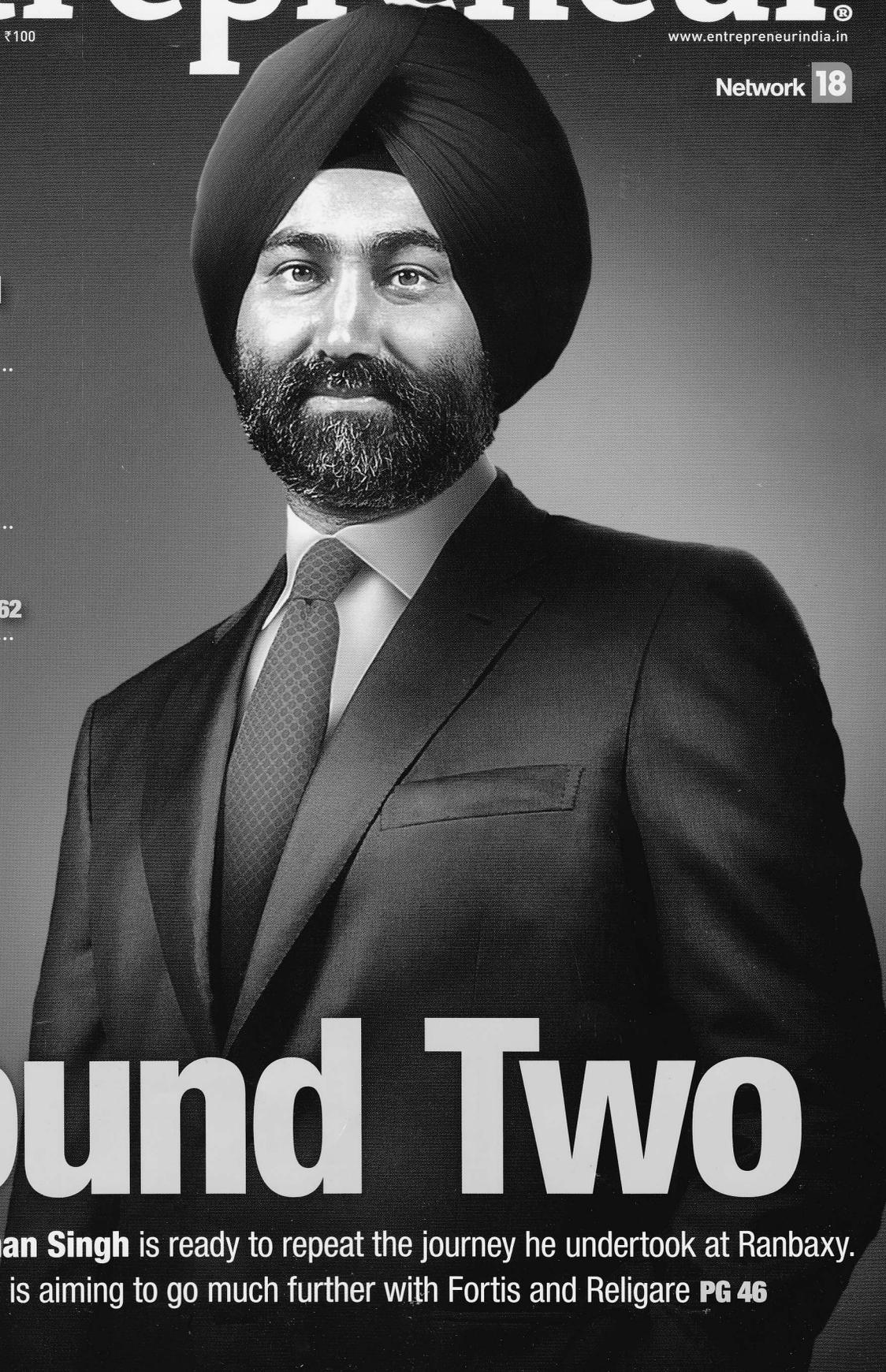
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# Round Two

**Malvinder Mohan Singh** is ready to repeat the journey he undertook at Ranbaxy. Only this time he is aiming to go much further with Fortis and Religare PG 46

# StartUps



A FEW

**MEN AND A FLYING MACHINE**

Forget Afghanistan. ideaForge is bringing the drone wars home ▶

[ ON WATCH ]

# AN EYE IN THE SKY

ideaForge has developed a product to assist defense and security forces in their activities by giving them a 'God's view' on things

**SHRUTI CHAKRABORTY**

**W**hat would you do if you were given a product that could fly overhead and send you images or a real-time video of what is happening around you within a radius of upto 2.5 kilometers? You could, perhaps, be thinking of deploying it to monitor your employees' work or take a peek at how the traffic situation is up ahead or find out which route to take on a trekking trip. For reference you can think of a similar product used in the film *3 Idiots*.

A few former students of IIT Bombay have developed a product capable of doing that, but the product is so far being provided only to defense forces, security agencies and para-military forces to help their operations on field.

Ankit Mehta, 29, Rahul Singh, Ashish Bhat, Amardeep Singh, 28, and Vipul Joshi, 30 are promoters of the startup ideaForge that has developed NETRA, an unmanned aerial vehicle in partnership with the Defense Research and Development Organization (DRDO).

## Learning to fly

The initial work for setting up ideaForge began while Mehta, Singh and Bhat were students at IIT Bombay. Mehta had joined IIT in the year 2000. The others were two years his junior

at the institute. What ties them all together, Mehta says, is that "we're all crazy about technology." While in IIT, as students they had worked on developing unmanned aerial vehicles. In 2004, the prototype of their product had failed miserably, Mehta admits.

The team continued working developing a number of products and in 2005 had represented India at Robocon, a robotics contest in Beijing. Mehta had also filed a patent for a renewable energy product while at IIT, that the company was producing in its early days. The energy product has now taken a backseat as the team focuses on developing NETRA and taking it to the right markets.

Mehta, who is the CEO of the company, graduated from his combined B. Tech and M.Tech degree from IIT Bombay in 2005. After a stint at a sales and marketing consulting firm to gather some money to support him in his bootstrapping efforts, he got back to IIT Bombay focusing on developing the unmanned aerial vehicle (UAV). In the meantime, Rahul Singh, who was studying at IIT, also worked on UAVs there. "Amardeep had done some self motivated work and was rather proactive and entrepreneurial even as a student at IIT, which is why we saw in him an interesting partner" Mehta says.

In 2007, ideaForge was incorporated and incubated at the Society for Innovation and Entrepreneurship at IIT Bombay. In the meantime, Mehta's childhood friend Joshi completed his management education abroad and joined the team after a short stint at an automotive parts manufacturer.

## TECH ALERT



**1** The GPS system allows the product to fly autonomously once it receives the instructions



**2** The battery, fitted on top, allows it to fly for upto half an hour. Just below the battery is the brain of the product. It is a small and extremely light auto-pilot



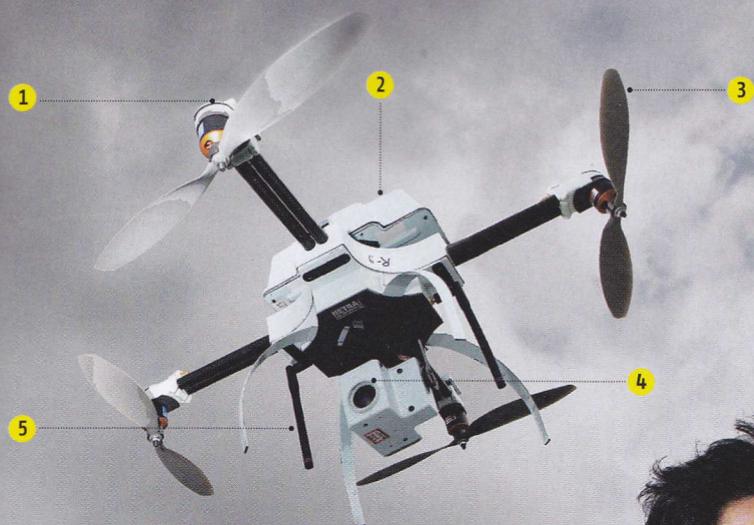
**3** The product flies with the help of four rotors. This helps easier take off and landing



**4** A camera is fitted at the bottom, which is capable of taking video footage from various angles



**5** A set of antenna send the footage gathered real time to the ground control platform



**BIRD'S-EYE VIEW**  
(l. to r.) Ankit Mehta, Vipul Joshi, Rahul Singh and Amardeep Singh



company in 2008. The startup was incubated at SINE until 2010. Post that, the company was also virtually incubated at the Centre for Innovation Incubation and Entrepreneurship at the Indian Institute of Management, Ahmedabad.

### Tech support for the bird

In 2008, during a conference on micro aerial vehicles and unmanned ground technologies, the team was identified by DRDO, following which they focused on creating a product that would be viable to produce and put into use commercially. The team received support from DRDO in terms of technology. "The partnership with DRDO proved very fruitful for us and we were able to bring out a product by 2009," Mehta says.

What was used in the 2009 film *3 Idiots* was in fact an early prototype of NETRA. Following that, their development work had begun to emerge as a product that could be produced and deployed in the field for a number of operations.

The product is an unmanned vehicle that flies over an area and gathers necessary video footage of the area. It runs on a battery that last for upto half an hour and it is capable of covering a distance of upto 2.5 kilometers. It is connected to a ground control platform and is fitted with four rotors that enable it to fly, a GPS to control the system and also a camera to gather video footage.

An important property of the product is that it is capable of taking off and landing vertically; which means that it can operate in difficult terrains including mountainous and forest areas since it doesn't need a runway. This property of the product makes it extremely useful for use in the field by defense and security organizations. The product weighs 2 kilograms, which makes it easily portable.

The biggest point of innovation, which is a trade-secreted technology of the company, is the auto pilot that

**"WE WANT TO BE THE BEST UNMANNED AERIAL VEHICLE COMPANY IN THE WORLD. WE HAVE A VISION TO ONE DAY BE ABLE TO MAN-PORT, OR TRANSPORT HUMANS THROUGH UNMANNED VEHICLES."**

**- VIPUL JOSHI,**  
VICE PRESIDENT, HR AND COMPLIANCE

controls the vehicle. "We developed the world's smallest and lightest commercial auto pilot at that time," Mehta claims. The product is a completely autonomous system and can be deployed in about 5 minutes.

### The best use of its wings

Currently the company is making presentations to various defense setups. "We have delivered these systems as pilot units for evaluation as to whether the forces can integrate these systems into their activities," Mehta shares. It has so far been a conscious decision of the company to not make the product widely available for commercial use. The product has also been deployed in the field by a number of organizations for surveillance.

Joshi says that the Central Reserve Police Force has actively used the product in areas like Chhattisgarh where they see a lot of movement from Naxals. The team is also called upon by security and law enforcement agencies on a case-to-case basis.

While the product has immense potential in other industries, a lack of regulation and guidelines can also lead to it being misused, the team believes. Joshi says, "Without proper guidelines and rules, making the product available commercially won't be right.

Someone might fly it over your building and invade your privacy." However, he shares that the team will consider a service model for private use; "If someone wants to scout a farm or any area, we may consider a service model so that its usage can be controlled."

The international market, however, is wide open for more extensive application of the product, Joshi says. The team already has a distributor in New Zealand and Australia showing the product to defense forces in these countries.

The team informs that there are only three other companies in the world making a relatively similar product. There is a lot of work done in terms of larger unmanned vehicles used by surveillance agencies and others, but those products need runways and are complicated to operate, Mehta says. "The technology is expensive, but rather easy to use. It is most effective as a last mile solution for the forces on ground," Mehta adds. The startup has laid particular emphasis on keeping the product simple.

### Mapping the path ahead

ideaForge received funding from some individual investors and secured seed funding, but hasn't taken any funds from angel investors or venture capital so far. The company is working with 24 employees and is backed by business development advisors including former Air Force officers.

The team has three strengths that Mehta believes are most essential for a startup. "We have a passionate team, which works well together and most importantly is also backed by the ability to deliver," he says. Joshi reiterates by saying that "it's a team to die for."

Joshi shares the company's vision by declaring that it wants to be the best unmanned aerial vehicle company in the world.

Their ultimate aim? To one day be able to man-port, or transport humans through unmanned vehicles. The future may be closer than we think. ■