

July 21, 2011

Race to the Moon Heats Up for Private Firms

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Keith Srakocic/Associated Press

A presentation in June by engineers from Carnegie Mellon University, working with a company called Astrobotic Technology, one of the teams in a competition to become the first private venture to land on the Moon.

Now that the last [space shuttle](#) has landed back on [Earth](#), a new generation of space entrepreneurs would like to whip up excitement about the prospect of returning to the [Moon](#).

Spurred by a \$30 million purse put up by Google, 29 teams have signed up for a competition to become the first private venture to land on the Moon. Most of them are unlikely to overcome the financial and technical challenges to meet the contest deadline of December 2015, but several teams think they have a good shot to win — and to take an early lead in a race to take commercial advantage of our celestial neighbor.

At the very least, a flotilla of unmanned spacecraft could be headed Moonward within the next few years, with goals that range from lofty to goofy.

One Silicon Valley venture, [Moon Express](#), is positioning itself as a future Federal Express for Moon deliveries: if you have something to send there, they would like to bring it. The company is throwing a party on Thursday night to show off the flight capabilities of its lunar lander, a prototype it bought from NASA, and “to begin the next era of the private commercial race to the Moon,” as the invitation put it.

“In the near future, the Moon Express lunar lander will be mining the Moon for precious resources that we need here on Earth,” the invitation promised. “Years from now, we will all remember we were there.”

Naveen Jain, an Internet billionaire and a founder of Moon Express, says the company will spend \$70 million to \$100 million to try to win [the Google Lunar X Prize](#), but could recoup its investment on its first flight. He envisions selling exclusive broadcast rights for video from the Moon, as well as sponsorships, á la Nascar, for companies to put their logos on the lander.

Or, perhaps, a tie-in to reality television.

“Wouldn’t it be nice if you could have a ‘Moon Idol,’ just like ‘[American Idol](#)?’ ” suggested Mr. Jain, who previously founded Infospace and Intelius. “You take the top 10 contestants and play their voices on the moon, record it and see who sounds the best.”

(There is no air on the Moon to transmit sound waves, but “you could play it through the dust and see what it sounds like when you play it right on the surface,” Mr. Jain said.)

Another competitor, [Astrobotic Technology](#), intends to sell berths on its lunar lander to space agencies and scientific institutions, which would pay \$820,000 a pound to send up their experiments. The company, a spinoff from Carnegie Mellon University, is building a large craft — much bigger than Moon Express’s — capable of carrying 240 pounds of payload (read: \$200 million of cargo) and hopes to be ready to launch in December, 2013.

“We can make a lot of money even if we do not win the prize,” said David Gump, president of Astrobotic, which is based in Pittsburgh. “We will be making substantial profit on the first flight. Basically, we’ll break even by selling a third of the payload.”

The X Prize competitors might all be beaten by landers and rovers that China, Russia and India plan to send up over the next couple of years. But those fall more in the mold of traditional, government-built science probes.

While NASA had wanted to send astronauts back to the Moon, its program was canceled last year, a victim of budget cuts and shifting priorities. But it has awarded \$500,000 each to Moon Express, Astrobotic and a third competitor, [Rocket City Space Pioneers](#), the first installments of up to \$30 million that it will contribute to the X Prize efforts.

George Xenofos, manager of NASA’s Innovative Lunar Demonstrations Data program, said he expected one or more teams to make it to the Moon. “It’s definitely not the technical issues that’s stopping them,” he said.

The contestants’ goals do not appear to face legal hurdles. The Outer Space Treaty of 1967, ratified by 100 nations including the United States, bars countries from claiming sovereignty over any part of the Moon, but does not prevent private companies from setting up shop. As for mining the Moon, it could fall under similar legal parameters as fishing in international waters.

Although some orbiting spacecraft have crashed into the Moon in recent years, 35 years have passed since anything from Earth made a soft landing there. To some people, this looks like an overdue invitation.

“It’s probably the biggest wealth creation opportunity in modern history,” said Barney Pell, a former NASA computer scientist turned entrepreneur and now a co-founder of Moon Express. While Moon Express might initially make money by sending small payloads, the big fortune would come from bringing back platinum and other rare metals, Dr. Pell said.

“Long term, the market is massive, no doubt,” he said. “This is not a question of if. It’s a question of who and when. We hope it’s us and soon.”

Like the aviation prizes that jump-started airplane technology a century ago, the Google Lunar X Prize is meant to rally the enthusiasm of technologists and entrepreneurs. It is administered by the X Prize Foundation, which handed out \$10 million in 2004 to the first private team to build a spacecraft that could carry people 60 miles above the Earth’s surface. (The winner, SpaceShipOne, was built by the aerospace designer Burt Rutan with backing from Paul Allen, the software magnate.)

For the Moon competition, Google put up \$30 million. Of that, \$20 million will go to the first team to land a spacecraft on the Moon, explore 500 meters and send back high-definition video and photos. The second team will win \$5 million, and the remaining \$5 million will pay for bonus prizes like surviving a frigid lunar night or traveling more than 5,000 meters on the surface.

Not all the competitors see dollar signs in the Moon. Rocket City Space Pioneers, a consortium of space businesses, is using its Moon effort largely to market technology that will allow multiple payloads to share one rocket, greatly reducing launching costs. (In other words, as the lander headed for the Moon, it could drop off a few satellites in orbit.)

“I think the Moon, it’s so expensive, we don’t know what the market is for sure in its entirety,” said Tim Pickens, chief propulsion engineer at Dynetics, an aerospace company in Huntsville, Ala., that is leading the Rocket City effort.

Meanwhile, at Moon Express, Mr. Jain’s imagination runs wild. A robot could scrawl a marriage proposal in the lunar dust, take a picture and send it to the customer’s beloved back on Earth. A time capsule filled with mementos or a strand of someone’s hair — and DNA — could be sent to the Moon, where it would persist, pristine in the airless environs.

“People become part of moon exploration,” Mr. Jain said, “and that has never been done before.”