

Toyota, Japan space agency join forces to develop Moon rover

Toyota Motor Corp., one of the world's largest automakers, and Japan's space agency said on Tuesday they had agreed to cooperate in developing a manned lunar rover that runs on fuel cell technologies.



PIERRE ALBOUY/REUTERS
A Toyota logo is displayed at the 89th Geneva International Motor Show in Geneva, Switzerland, on March 5, 2019.

Although Japan has no plan currently to make a manned rocket that could send people into space, the rover could be a major contribution to an international space probe program in the future, the Japan Aerospace Exploration Agency (JAXA) said, Reuters reported.

The rover "will be an important element supporting human lunar exploration, which we envision will take place in the 2030s", JAXA Vice President Koichi Wakata told a symposium in Tokyo.

"We aim to launch such a rover into space in 2029."

The rover is still in the conceptual stage, but an illustration in the news release showed a six-wheel vehicle that somewhat resembled an armored personnel carrier.

A spokesman for Toyota, which plans to ramp up fuel-cell cars as a zero-emission alternative to gasoline vehicles, said the project would give the company a chance to test its technologies in the Moon's harsh environment and improve them.

Toyota Executive Vice President Shigeki Terashi stressed the excitement that comes with taking part in a space project.

"As an engineer, there is no greater joy than being able to participate in a lunar project by way of Toyota's car-making," Terashi told the symposium.

"Being allowed to be a member of 'Team Japan', we would like to take up the challenge of space," he said.

Japanese scientists take 'significant step' toward bringing prehistoric mammoths back to life

The last woolly mammoth populations died out just over 4,000 years ago, but the prehistoric giants could soon be back and plodding about just like they were during the ice age.

Scientists in Japan claim to have taken a 'significant step' toward bringing the extinct species back to life, after they transplanted cells extracted from the carcass of a mammoth into a mouse, where they subsequently recorded positive biological activity, independent.co.uk reported.

The cells were taken from the 28,000-year-old mummified remains of a woolly mammoth, named Yuka, found in Siberian permafrost in 2010. The animal, which died when it was about seven-years-old, is one of the best preserved mammoths known to science.

The team extracted tissue samples from the animal's bone marrow and muscle, which they described as 'well preserved'.

They then began searching for cell nuclei remains. In total, 88 nucleus-like structures were collected from the muscle sample.

The structures were then injected into mouse oocytes — a cell in an ovary which can undergo genetic division to form an egg cell.



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The team said following the procedure a "pronucleus-like structure budged from the injected ... mammoth nucleus".

They also found possible signs of repair to damaged mammoth DNA.

"These results indicate that a part of

mammoth nuclei possesses the potential for nuclear reconstitution," the scientists said, in a paper published in the journal Nature.

Despite the successes, the scientists did not observe the further cell division necessary to create a viable egg,

"possibly due to the extensive DNA damage in the transferred nuclei".

This marks a "significant step toward bringing mammoths back from the dead", researcher Kei Miyamoto, one of the study's authors told Japan's Nikkei news outlet.

"We want to move our study forward to the stage of cell division," he added, but acknowledged "we still have a long way to go".

Most mammoth populations died out between 14,000 and 10,000 years ago. The last mainland population existed in the Kyttyk peninsula of Siberia until 9,650 years ago.

But the species survived for another 5,000 years on Siberian islands, which became cut off from the mainland by retreating ice following the last ice age.

The last known population remained on Wrangel Island in the Arctic Ocean until 4,000 years ago — well beyond the dawn of human civilization, but finally becoming extinct around the time of the construction of the pyramids of Giza in Egypt.

There is no scientific consensus on the chief cause for the creatures' demise, but climate change significantly reduced habitable parts of the globe for mammoths, and they were also hunted by humans.

Astronaut trainer job of the future

Who did not dream of being an astronaut when they were a kid? And yet to date, only 536 humans have been to space.

Dawn of space tourism

As we enter the age of commercial space travel, this universal dream can soon be a reality, particle.scitech.org.au reported.

In December, Virgin Galactic's VSS Unity reached the edge of space for the first time, taking the company one step closer to offering commercial space travel.

The Spaceship Company, is currently lead by Perth-born and UWA-educated Enrico Palermo.

Career of the future

As space tourism becomes a reality, so too does a whole new career: Commercial astronaut trainer.

Beth Moses is one of the first to take on the job as chief astronaut instructor for Virgin Galactic.

Before she began training civilian astronauts, Beth worked for NASA as the ex-

travehicular system manager for the International Space Station.

Beth described it as "a sort of masterclass in flight".

Beth's job is all about preparing civilian astronauts for their first trip into space.

"The whole aim of the training program is to make sure you arrive in space ready to savor the space flight and get out of it whatever you want to get out of it," Beth said.

"I'm aiming to make it the

best three days on the planet, before you leave the planet." The training comes in three parts. Part one is all about you, learning about your space suit and how to handle g-forces during the flight.

Next up is focusing on the cabin and the other people you are flying with — essentially your crew. It's all to ensure the group dynamic is good and everyone gets to experience what they wanted on the trip.

And finally, the flight preparations: Fit checks, dress rehearsals and advice from

Our blue marble

For Beth, there's more to civilian space travel than the ride. She believes the experience is a way to build a more peaceful future for humanity.

"So many kids look at the stars, and it simultaneously inspires and connects everyone together," Beth said.

The first time humans saw what our planet looked like from space, it was a transformative moment with the breathtaking photos taken during the Apollo program inspiring awe across generations.

Even current astronauts say the experience changed them — a cognitive shift called the overview effect.

Astronaut Edgar Mitchell described it as "develop[ing] an instant global consciousness, a people orientation, an intense dissatisfaction with the state of the world, and a compulsion to do something about it".

Beth could not agree more: "[Space] travel is amazingly transformative in ways we cannot even predict."

South Korea's Classting, Wonik Robotics to develop AI robots for students

An increasing number of IT startups and manufacturers have begun working to develop educational robots powered by artificial intelligence (AI) to offer more personalized education in accordance with each student's characteristics and needs, South Korean industry officials said Wednesday.

It is said AI-based services can provide customizable education at relatively cheaper prices compared to private tutors or private cram schools, raising hope for the technology to help calm the overheated private education market in South Korea, koreatimes.co.kr reported.

Leading the pack is education technology startup Classting, which plans to develop an AI robot for education by the end of the year in cooperation with robot engineering specialist Wonik Robotics, based in Pangyo, Gyeonggi Province.

The two companies signed a memorandum of understanding on March 8 to jointly develop the education robot equipped with human robot interaction (HRI) technology.

Once the development of the robot is completed, students will be able to solve test questions in accordance with their learning ability levels, and watch personalized video lectures through a display screen of the robot,



CLASSTING
Cho Hyun-gu (L), the CEO and founder of education startup Classting, poses with Chang Kyong-sok, the CEO of Wonik Robotics, in the latter's headquarters in Pangyo, Gyeonggi Province, South Korea, on March 8, 2019 after signing an MOU to jointly develop an AI robot for education.

according to Classting.

The robot, through its vision system, will be capable of recognizing student's faces for communication, which will help improve the learning experience.

Parents will also be able to check school news, notices and homework through the robot.

"Classting's abundant data will create synergy with robot technology, and offer next-generation education service to students and parents,"

children. Utilizing the partnership, the tech giant plans to add a vast amount of educational content to the LG CLOi AI robot to provide users with distinguished service and raise competitiveness of the firm's robot lineup.

"We expect convergence between LG's AI robot and educational content to offer new experiences to users and maximize effectiveness of education," said Roh Jin-seo, the head of robotics business at LG Electronics.

Kyowon Group, specializing in educational content, also launched AI-based mathematics education service, RED-PEN AI Mathematics, on March 4 in cooperation with SK C&C, an IT service unit of SK Group.

The service provides an AI teacher for elementary school students, offering mathematics learning programs fully customizable to fit learning capability levels and characteristics of each student.

Abil, the Korean-speaking AI platform based on IBM's Watson, was applied to the service, enabling users to interact through the use of voice commands.

According to market researcher MarketsandMarkets, the scale of the education robot market will grow to 1.9 trillion won (\$1.7 billion) in 2023 from 880 billion won last year.



VIRGIN GALACTIC

With tickets currently priced around \$250,000 to help fund the huge startup costs, it is not for everyone. But Virgin has said once flights begin, the costs will come down, making the trip accessible to more people.

Several West Australians have already booked their seats and will be proud to know the ship they are flying on has a connection to home: The builder of VSS Unity,

people who have flown in the ship before.

Beth described it as "a sort of masterclass in flight".

Being an astronaut trainer

Creating all of this training is Beth's responsibility. Since everything is brand new — the ship, the procedures and even the space suits — she has to create it all from scratch.