

Nasa launches spacecraft to kick an asteroid off course

A Nasa mission to deliberately smash a spacecraft into an asteroid — a test run should humanity ever need to stop a giant space rock from wiping out life on Earth — blasted off on Tuesday from California. It may sound like science fiction, but the DART (Double Asteroid Redirection Test) is a real proof-of-concept experiment, which lifted off at 10:21pm Pacific Time on Tuesday aboard a SpaceX rocket from Vandenberg Space Force Base.

“Asteroid Dimorphos: we’re coming for you!” Nasa tweeted after the launch. The goal is to slightly alter the trajectory of Dimorphos, a “moonlet” around 525 feet wide that circles a much larger asteroid called Didymos (2,500 feet in diameter). The pair orbit the sun together.

The impact should take place in the fall of 2022, when the binary asteroid system is 11 million kilometers from Earth, almost the nearest point they ever get. “What we’re trying to learn is how to deflect a threat,” Nasa’s top scientist Thomas Zuburchen said of the \$330m project, the first of its kind.

To be clear, the asteroids in question pose no threat to our planet. But they belong to a class of bodies known as Near-Earth Objects (NEOs), which approach within 30m miles.

Nasa’s Planetary Defence Coordination Office is most interested in those larger than 460 feet in size, which have the potential to level entire cities or regions with many times the energy of average nuclear bombs.

There are 10,000 known near-Earth asteroids 460 feet in size or greater, but none has a significant chance to hit in the next 100 years. One major caveat: scientists think there are still 15,000 more such objects waiting to be discovered.

15,000 mph kick Planetary scientists can create miniature impacts in labs and use the results to create sophisticated models about how to divert an asteroid — but models are always inferior to real-world tests.

Scientists say the Didymos-Dimorphos system is an “ideal natural laboratory”, because Earth-based telescopes can easily measure the brightness variation of the pair and judge the time it takes the moonlet to orbit its big brother. Since the current orbit period is known, the change will reveal the effect of the impact, scheduled to occur between September 26 and October 1, 2022.

What’s more, since the asteroids’ orbit never intersects our planet, they are thought safer to study. The DART probe, which is a



box the size of a large fridge with limousine-sized solar panels on either side, will slam into Dimorphos at just over 15,000 miles an hour.

Andy Rivkin, DART investigation team lead, said the current orbital period is 11 hours and 55 minutes, and the team expects the kick will shave around 10 minutes off that time. There is some uncertainty about how much energy will be transferred by the impact, because the moonlet’s internal composition and porosity are not known.

The more debris that’s generated, the more push will be imparted on Dimorphos. “Every time we show up at an asteroid, we find stuff we don’t expect,” said Rivkin.

The DART spacecraft also contains sophisticated instruments for navigation and imaging, including the Italian Space Agency’s Light Italian CubeSat for Imaging of Asteroids (LiciaCube) to watch the crash and its after-effects. “The CubeSat is going

to give us, we hope, the shot, the most spectacular image of DART’s impact and the ejecta plume coming off the asteroid. That will be a truly historic, spectacular image,” said Tom Statler, DART programme scientist. Nuclear blasts The so-called “kinetic impactor” method isn’t the only way to divert an asteroid, but it is the only technique ready to deploy with current technology. Others that have been hypothesised include flying a spacecraft close by to impart a small gravitational force. Another is detonating a nuclear blast close by — but not on the object itself, as in the films “Armageddon” and “Deep Impact” — which would probably create many more perilous objects. Scientists estimate 460-foot asteroids strike once every 20,000 years. Asteroids that are six miles or wider — such as the one that struck 66m years ago and led to the extinction of most life on Earth, including the dinosaurs — occur around every 100-200m years. —AFP



China launches new satellite Gaofen-11-03 into orbit from Taiyuan



BEIJING: China has launched a new satellite into orbit from the Taiyuan Satellite Launch Center in Shanxi province. The Gaofen-11 03 satellite was blasted off in to orbit, using the Long March-4B rocket which is an orbital launch vehicle. The Long March-4B rocket is also named as Chang Zheng 4B. It was launched at 9:51 a.m. (Beijing Time). The China National Space Administration (CNSA) handles the space program of the country. Recently, the Chinese taikonauts China’s Tiangong space station made history by spacewalking. The Gaofen, which means “high resolution”, satellite was developed by China Aerospace Science and Technology Corporation. The key features of the satellite include land surveys, land rights confirmation, city planning, road network design, disaster prevention, and mitigation and crop yield estimation. Gaofen-11 03, a remote sensing satellite, has successfully entered into the orbit. —

Chinese firm exposes India-backed cyber-attacks against Beijing, Islamabad

BEIJING: A China-based cybersecurity company has exposed Indian involvement in cyber-attacks against the sensitive military departments of neighbouring countries including China and Pakistan.

This was revealed by Secretary General of the Cyberspace International Governance Research Center and Senior Research Fellow of Shanghai Institutes for International Studies, Lu Chuanying in his article published in China Military Online. The company in its report has identified a state-level hacking organisation in India launching the attacks. “Based on online tracking for a long time, the company has found that this hacking organization has become one of the most active and mature hacking organizations in South Asia,” read the article. The report said that organization is “obviously backed by state forces of India”.

Lu Chuanying argues in the article that cyberspace is not land beyond the law, adding that India-backed cyber-attacks posed serious threats to regional security and stability. The nefarious design will impede the cybersecurity cooperation of international organizations such as SCO and BRICS. He added that India is violating UN and other international laws related to cybersecurity. The Chinese



expert also urged the international community to demand India immediately stop the cyber-attacks against the neighbouring countries. “New Delhi seems to have forgotten that India is also a developing country in the field of cyberspace and it is also facing immense cyber security risks. Its cyber-attacks on neighboring countries may court revenge, which it is obviously not capable enough to fend off,” read the article.

The author also called for intensifying the defensive capabilities amid the worsening cybersecurity situation.

In shock move, India announces bill to ban cryptocurrencies

NEW DELHI: India’s government will introduce a bill to ban private cryptocurrencies and create a framework for a central bank-backed digital money, its parliament said in a shock announcement late.

The proposed bill “seeks to prohibit all private cryptocurrencies in India”, the Lok Sabha said, and comes after Prime Minister Narendra Modi warned last week that Bitcoin presents a risk to younger generations and could “spoil our youth” if it ends up “in the wrong hands”. It is the latest such move by a major emerging economy, after China declared all cryptocurrency transactions illegal in September.

India’s crypto market has boomed since the country’s Supreme Court overturned a previous ban in April last year, growing more than 600 per cent over the past year according to research by Chainalysis. Between 15 and 100 million people in Asia’s third-largest economy are estimated to own cryptocurrencies, with total holdings in the billions of dollars. Their investments will now face an uncertain future. India’s central bank an-

nounced in June that it is working to introduce its own digital currency by the end of the year, while warning it has “serious concerns” about private cryptocurrencies like Bitcoin, Ethereum and others. The bill, to come before the new legislative session, will allow for some exceptions to promote cryptocurrency technology, according to the parliament’s bulletin of upcoming business, but no further details about the proposed legislation were released. The market price of Bitcoin appeared unaffected and was up 1.67pc.

But the phrasing of the proposed bill sent alarm bells ringing among local traders and enthusiasts. “The wording has created a panic,” Kashif Raza, founder of crypto-education platform Bitinning, said, adding that the industry expected the government to take a more favourable view after recent consultations with the industry.

“Obviously there will be a shutter-down on the industry,” he added. “The industry will die in its natural way. Intellectual capital will move away, investors will face losses.” Under scrutiny

Cryptocurrencies have been under scrutiny by Indian regulators since first entering the local market in 2013.

A surge in fraudulent crypto transactions following the Modi government’s demonetisation of nearly all banknotes in 2016 led to the country’s central bank banning crypto transactions in April 2018. The Supreme Court lifted the ban two years later and investments have surged in the time since.

Indians have been bombarded in recent months with advertisements for CoinSwitchKuber, CoinDCX and other home-grown crypto exchanges across television channels, online streaming services and social media. These platforms spent more than 500 million rupees (\$6.7 million) on advertising spots during the recently concluded T20 World Cup, research by TAM Sports showed, with viewers subjected to an average of 51 cryptocurrency advertisements per match. Analysts say regulation would be central to addressing security risks, with crypto exchanges increasingly targeted by cyber criminals as virtual currency prices soar. —AFP

