

→ MUKA SEPULUH

DARI KACA MATA

→ **Prof Dr Ahmad Ismail**
Felo Akademi Sains Malaysia; Profesor
Jabatan Biologi Universiti Putra
Malaysia (UPM); Ahli Kongres
Persatuan Akademik Malaysia (MAAC)



Perancangan pelajaran lepasi Wawasan 2020

Kementerian Pelajaran mungkin perlu memberikan penekanan kepada Wawasan 2020 yang dilancarkan oleh Tun Dr Mahathir Mohamad pada 1991. Penekanan ini sangat penting bagi menilai pencapaian perancangan dan pelaksanaan Kementerian selama hampir 30 tahun lalu.

Semakin perlu dibuat segera sebagai persediaan sebuah negara maju pada 2020. Walaupun Selangor boleh dijadikan model negeri maju di Malaysia, banyak perkara lagi yang perlu dilihat terutama dari segi pembangunan sumber manusia untuk kesejahteraan rakyat.

Kementerian Pelajaran perlu memainkan peranan berkenaan dalam menyediakan sumber manusia menerusi pelbagai bidang pengetahuan dan kemahiran.

Tujuan utama perancangan dan pencapaian Wawasan 2020 Kementerian Pelajaran ini juga untuk persediaan dan bagi menjayakan pelan tindakan bagi perancangan 10 hingga 30 tahun akan datang.

Sumber manusia

Negara memerlukan sumber manusia yang berpengetahuan dan berkemahiran tinggi dalam mengendalikan sebuah negara maju sama ada dari segi kemanusiaan, sistem dan infrastruktur.

Justeru, prestasi sistem pendidikan negara mestilah mantap sesuai dengan zaman dan budaya Malaysia.

Menjelang 2020 yang tidak sampai dua tahun lagi ternyata menjadikan cabaran semakin mening-

kat di samping tekanan politik dan persaingan ekonomi tempatan dan antarabangsa semasa.

Semua kementerian mestilah melihat Wawasan 2020 ini secara serius, khususnya Kementerian Pelajaran. Kajian terperinci berkaitan perancangan, pelaksanaan dan pencapaian setiap kementerian mestilah dilihat secara bersepadu sebagai persediaan menghadapi negara maju 2020.

Kementerian Pelajaran antara yang penting bagi membantu mencapai matlamat Wawasan 2020 yang digariskan oleh Dr Mahathir ketika beliau melancarkan-nya pada 1991.

Hampir 30 tahun dahulu semua aspek kemakmuran ekonomi, kebajikan sosial, pendidikan bertaraf dunia, kestabilan politik dan keseimbangan psikologi yang

ditekankan dan diuar-uarkan ke seluruh negara, hanya dapat dicapai melalui sistem pendidikan dan pelaksanaan yang baik terancang dan teratur.

Pencapaian

Kementerian Pelajaran perlu membuat kajian segera sejauh mana pencapaian Kementerian itu dalam membuat perancangan Wawasan 2020 menjadikan pendidikan bertaraf dunia dan menyumbang kepada sumber tenaga manusia bagi mencapai matlamat sebuah negara maju.

Matlamat keenam misalnya, dalam memartabatkan sains dan teknologi, juga sepatutnya dapat diukur pencapaiannya.

Adakah selama hampir 30 tahun ini Kementerian Pelajaran (dulu dikenali Kementerian Pendidikan) sudah dapat memenuhi keperluan sumber tenaga manusia pakar dalam bidang sains dan teknologi secara menyeluruh?

Semua perancangan perlu diaudit pencapaiannya dan dilaraskan semula bagi menambah baik kepincangan atau kekurangan yang mungkin ada sejak hampir 30 tahun lalu.

Kita tahu sains dan teknologi sangat penting terutama dalam membincangkan Revolusi Perindustrian 4.0, robotik dan kecerdasan buatan, teknologi maklumat, media baharu, inovasi dan persaingan antarabangsa.

Dr Mahathir telah banyak menekankan perkara ini dahulu terutama dalam membangunkan teknologi komunikasi maklumat (ICT) negara, koridor raya multimedia, pusat inkubator, kerjasama negara maju melalui Dasar Pandang Ke Timur dan banyak lagi.

Inovasi

Semua ini mesti dilihat dengan lebih serius lagi merangkumi semua aspek budaya, kepercayaan, taraf ekonomi rakyat dan gaya hidup masyarakat Malaysia, kurikulum dan pelaksanaan pembelajaran dan pengajaran, kemahiran guru, pencapaian penyelidikan berimpak tinggi di universiti dan peranan agensi seperti Akademi Sains Malaysia, Pusat Sains Negara, pihak korporat dan pertubuhan bukan kerajaan (NGO) dalam pembangunan sains, teknologi dan inovasi (STI) negara.

Sejauh mana pencapaian aliran STEM (sains teknologi kejuruteraan dan matematik) dan dasar STI negara perlu juga dikaji serta dibuat penambahbaikan dan pelaksanaannya yang mantap kerana STI penting dalam sebuah negara maju.

Cabaran baharu Kementerian Pelajaran selepas 2020 bagi memastikan Malaysia mampu bersaing dengan kuasa besar seperti China dan negara jiran ASEAN yang juga agresif dalam pembangunan STI mereka.

Kementerian ini mesti segera bekerjasama dengan semua pihak dalam usaha membangunkan sumber manusia bagi memajukan negara untuk kepentingan semua rakyat dan maruah negara.

Semua pemimpin berkaitan pendidikan dan pembangunan STI negara mestilah segera mengemuka pandangan berkaitan status STI negara dan laluan masa depan jangka pendek, 10 dan 30 tahun akan datang.

Peranan universiti dan tenaga pakar semua bidang juga perlu digemblengkan untuk tujuan itu.



Semua kementerian mestilah melihat Wawasan 2020 ini secara serius, khususnya Kementerian Pelajaran. Kajian terperinci berkaitan perancangan, pelaksanaan dan pencapaian setiap kementerian mestilah dilihat secara bersepadu sebagai persediaan menghadapi negara maju 2020"



Kementerian Pelajaran perlu melahirkan generasi yang berupaya menzahirkan Wawasan 2020 menerusi pelbagai bidang pengetahuan serta kemahiran.

LAMPIRAN 2
NEW STRAITS TIMES (SCHOOL TIMES) : MUKA SURAT 12
TARIKH : 22 MEI 2018 (SELASA)

SCHOOL TIMES

news on events or programmes at your school together with high resolution photos and captions to: schooltimes@nst.com.my



INNOVATION COMPETITION

#MyGeekMovement spurs innovation

BY HANNA SHEIKH MOKHTAR

Being a tropical country, the weather in Malaysia is naturally hot and humid most of the time. Many households, especially those in the cities, have one or two air-conditioning units to help bring down the temperature a notch or two, in order to make living conditions more bearable. However, with prolonged use, an air-conditioner can lose its effectiveness and cause other problems such as an increase in energy consumption, less cool air and also dust accumulation that can lead to illnesses.

In view of these problems, Team Y3K from SMK Lutong, Miri in Sarawak decided to find a solution - a device that can emit a light to alert users when the air-conditioning system has reached the maximum time for maintenance works and cleaning. Dubbed the Awesome Dust Detector (ADD), the device can be connected via Wi-Fi to a smartphone application that will alert users once their air-conditioners have too much dust accumulation in it.

The ADD recently won first prize at an 'Access to Energy' themed innovation challenge called #MyGeekMovement organised by Shell Malaysia in collaboration with the Malaysia Digital Economy Corporation (MDEC), with the support of the Ministry of Education.

As winners, the members from Team Y3K will have a once-in-a-lifetime opportunity to be part of Shell's 'Make the Future' (MTF) Live in London. MTF Live is an annual event that showcases hands-on science experiments,



Team SMK Lutong, Miri receives the #MyGeekMovement Malaysia National Champion award from Shell Business Operation general manager, Nyon Kam Yew (right). Looking on are Malaysia Digital Economy Corporation vice president, Sumitra Nair and Education Ministry Co-curriculum and Arts Division assistant director, Nadhirah Azman.

energy panel debates and the latest in virtual reality (VR), artificial intelligence (AI) and augmented reality (AR) experiences, driving bright ideas towards a lower-carbon energy future.

The leader of the team, Liew Jia Wen, 14, explained that they received advice from their teachers as well as from a team of engineering students from Curtin University, Sarawak campus.

"Altogether, it took us eight months to complete the prototype, from idea inception

to testing. Whenever we came across a problem, we kept on trying and trying until we succeeded," he said.

Team Y3K beat two other teams - the Sabah state champion team from SMK St Michael, Penampang who showcased an invention called Solisaguaventus Generator, that is able to harness wind, solar and water to generate power, and the Peninsula champion team from SMK Bandar Puncak Jalil, Selangor who invented a solar and water turbine energy generator.

Education Ministry Co-curriculum and Arts Division assistant director, Nadhirah Azman, who was on the judging panel, said that she was super impressed by all the teams. She believes that what they have achieved shows that the competition has developed the students holistically.

"They are confident, can communicate their ideas and they have learnt to cooperate with their team mates," said Nadhirah.

#MyGeekMovement aims to provide learning content that complements the existing school co-curricular structure with a long-term goal to increase the number of students opting for science stream (Science, technology, engineering and Mathematics - STEM) in the selected schools, while boosting interests in science and technology amongst the young generation.

15 schools nationwide had been selected to be part of this immersive programme involving 225 secondary students across Sabah, Sarawak and Peninsular Malaysia. These students experienced hands-on STEM learning, with a focus on technology. A peer to peer coaching was also implemented to help disperse the knowledge to the student community in the participating schools.

Shell Business Operation general manager, Nyon Kam Yew said: "Shell is just a catalyst to inspire more students in Malaysia in STEM. Looking at the products the teams have created, they have had a really multi-dimensional learning experience."

"I hope the teachers can help to showcase the products and teams to others within their school community."

LAMPIRAN 3
THE STAR (EVENTS) : MUKA SURAT 10
TARIKH : 22 MEI 2018 (SELASA)

Science up close for 30 needy children

Grocery store operator organises eye-opening visit to Petrosains

The children from Rumah Penyayang Nur Iman in Setapak, at the Cold Storage store in Suria KLCC.



THIRTY children from Rumah Penyayang Nur Iman Setapak were treated to a fun day out to the Petrosains Discovery Centre at Suria KLCC.

The outing, organised by grocery store Cold Storage, gave the children the opportunity to personally experience science through hands-on interactive exhibits.

The programme was part of the corporate social responsibility (CSR) initiatives undertaken by GCH Retail to reach out to less fortunate children.

GCH Retail is the operator of Cold Storage stores in Malaysia. During the discovery tour, the children were assisted by 15 "Big Hearted Sweet Hearts" who were part of GCH's volunteer brigade comprising GCH Retail as well as Cold Storage KLCC staff.

The Big Hearted Sweethearts made sure that the children had fun while experiencing and learning the world of science.

The children, aged from two to 18 years old, participated in activities such as Simple Puzzle Circuit, Woodwork String and Microbit Coding workshop led by Petrosains staff.

Later, the children were taken on a visit to the Cold Storage flagship store at KLCC.

Cold Storage KLCC store manager Lau Choy Hong said, "We are more than happy to host these children. We hope they had fun at the Petrosains Discovery Centre and that the tour was educational for them."

"We hope the trip will inspire them towards learning Science and technology. We look forward to reaching out to more children who are in need," he added.



A Cold Storage KLCC staff member helping children from the home with an activity at Petrosains.

Learning science and maths – why English matters

TUN Dr Mahathir Mohamad's initial desire to helm the Education Ministry has rekindled the debate on teaching Science and Maths in English. While his brainchild is being hotly disputed, the prime minister has not hinted anything yet.

Being a product of the PPSMI policy myself, I have always had a genuine interest in this debate. What more, as a trainee teacher teaching Science and Biology, I am eager to see this policy revived. Unfortunately, some groups are against this policy. Since last week, the groups have begun reiterating arguments against the teaching of Science and Maths in English.

Generally, the opponents of PPSMI cite the success stories of many Asian countries as the crux of their case. These countries include Japan, China and a few more that maintain their mother tongue as the medium of instruction to teach Science and Maths. At a glance, we could easily be led astray because most of these countries are consistent toppers of international assessments. However, when subjected to scrutiny, their flaws become evident.

Japan is the most clichéd example pitted against the teaching of Science and Maths in English. Back home, we are led to believe that learning Science and Maths in their national language boosted patriotism among the Japanese people. Indeed, Japan is hailed as a nation of inventors and is highly reputed for its scientific advancements. But, we have romanticised their patriotic pride for too long that we have been oblivious to their struggles.

Japanese scientists are facing the dilemma to actively engage with the international science community. Despite Japan ranking fifth in the world in terms of high-quality research output, the 2015 Nature Index reports that Japanese scientists' contribution to high-impact science journals

fell by 12% from 2012 to 2015. Due to this, its government had to initiate several reforms in its tertiary science education. This includes creating more English-medium programmes and increasing the enrolment of international students in Japanese higher education institutions.

For example, the Okinawa Institute of Science and Technology Graduate University was established to conduct all of its courses in English.

If we negate the role of English in teaching Science and Maths in our schools, then we will have to resort to similar remedies eventually. Why not invest now and reap the benefits faster?

Several other Asian countries teaching Science and Maths in their vernacular language struggle with a similar predicament. Take China for instance. In January 2004, Chinese scientists had discovered the H5N1 virus and published their findings in a Chinese journal of veterinary medicine. However, only in August 2004, did the research come to the attention of the WHO and the United Nations who rushed to translate the findings.

Now, imagine how much more significant advancements that could have been achieved if the research was communicated around the globe earlier?

Japan and China were undoubtedly successful in nurturing bright science talents in their mother tongue but the language barrier impeded their progress. English is the lingua franca of science and the global community will not have it otherwise. If we still refuse to accept this fact, then we will remain isolated from the international science community.

Should we continue to jeopardise our young talents for the sake of prejudiced sentiments and rhetoric? I don't think so.

Dhesegean Bala Krishnan
University of Malaya

LAMPIRAN 5
BERITA HARIAN (ISU) : MUKA SURAT 13
TARIKH : 22 MEI 2018 (SELASA)



**Helmi pada sidang media
Kad Ucapan Hologram
Raya Pos Malaysia dan Kad
Pos Istimewa untuk Kad
Ucapan Raya di Ibu Pejabat
Pos Malaysia.**

Kad ucapan Raya Hologram 3 Dimensi

Kuala Lumpur: Pos Malaysia Berhad (Pos Malaysia) mengumumkan inovasi terbaru dalam menggabungkan teknologi dan tradisi dengan memperkenalkan kad ucapan Raya Hologram 3 Dimensi (3D) sempena Aidilfitri tahun ini.

Ketua Pegawai Operasi Mel, Helmi Hashim, berkata inovasi teknologi Augmented Reality (AR) yang diperkenalkan tahun

lalu itu mendapat sambutan menggalakkan sehingga merangsang pengeluaran kad raya sama dengan ciri tambahan.

“Kelainan ini menggabungkan digital dan kad raya tradisional untuk menarik masyarakat terutama generasi Y yang lebih tertumpu kepada penggunaan mesej pesanan ringkas dan media sosial,” katanya pada sidang media di Ibu Pejabat Pos

Malaysia, di sini, semalam.

Yang hadir sama, Ketua Mel Komersil Shamsuddin Harun.

Pek kad Ucapan Raya Hologram 3D itu dijual pada harga RM12 yang mengandungi empat kad AR dan masing-masing satu kad ucapan Hari Raya, sampul berserta setem 50 sen, projektor plastik hologram dan poskad filem ‘Pulang’ edisi terhad.

Kad Ucapan Raya Hologram

3D didatangkan dalam dua reka corak dan video yang berbeza.

Pelanggan perlu memuat turun aplikasi hologram melalui aplikasi Google Play atau App Store dan melekatkan projektor plastik hologram pada skrin telefon pintar untuk melihat video hologram 3D.

Kad keluaran baharu itu boleh didapati di 400 pejabat pos terpilih atau di laman sesawang www.eziemall.com.

LAMPIRAN 6
HARIAN METRO (SETEMPAT) : MUKA SURAT 19
TARIKH : 22 MEI 2018 (SELASA)

Pos Malaysia perkenal kad raya 3 dimensi

Kuala Lumpur: Pos Malaysia Berhad (Pos Malaysia) memperkenalkan kad Ucapan Raya Hologram 3 Dimensi (3D) yang menyaksikan peralihan mesej ucapan Aidilfitri daripada kad ke 3D.

Ketua Pegawai Operasi Mel, Helmi Hashim berkata, inovasi augmented reality (AR) yang diperkenalkan tahun lalu mendapat sambutan menggalakkan sehingga merangsang pengeluaran kad raya sama dengan ciri tambahan.

"Kelainan ini menggabungkan digital dan kad raya tradisional untuk menarik masyarakat terutama gene-



HELMi (kiri) pada sidang media kad Ucapan Raya Hologram 3D, semalam.

rasi Y yang lebih tertumpu kepada penggunaan mesej pesanan ringkas dan media sosial.

"Pek kad Ucapan Raya Hologram 3D dijual pada harga RM12 mengandungi empat kad AR, kad ucapan Hari Raya (1), sampul berserta setem RM0.50 (1), projektor plastik

hologram (1) dan poskad filem Pulang edisi terhad (1)," katanya pada sidang media kad Ucapan Raya Hologram 3D di Ibu Pejabat Pos Malaysia, di sini, semalam.

Hadir sama, Ketua Mel Komersil Shamsuddin Harun.

Katanya, kad Ucapan Raya Hologram 3D didatangkan

dalam dua reka corak dan video berbeza.

Pelanggan perlu memuat turun aplikasi hologram melalui aplikasi Google Play atau App Store dan melekatkan projektor plastik hologram pada skrin telefon pintar untuk melihat video hologram 3D.

LAMPIRAN 7
SINAR HARIAN (SELASA) : MUKA SURAT 54
TARIKH : 22 MEI 2018 (SELASA)

Gabung teknologi & tradisi

Pos Malaysia perkenal kad ucapan Raya 3D Hologram

NORSHAHZURA MAT ZUKI

POS Malaysia Berhad (Pos Malaysia) menawarkan inovasi terbaharu mereka dalam menggabungkan teknologi dan tradisi dengan memperkenalkan kad ucapan Raya 3D Hologram sempena perayaan Aidilfitri 2018 berikutan kejayaan poskad animasi Aidilfitri yang menonjolkan teknologi Augmented Reality (AR) pada tahun lalu.

Ketua Pegawai Eksekutif Kumpulan Pos Malaysia, Al-Ishsal Ishak berkata, kad ucapan Raya Hologram Raya 3D didatangkan dalam dua reka corak dan video yang berbeza.

Menurutnya, setiap kad diserta-

kan dengan setem 50 sen yang dicetak pada kad ucapan itu bagi membolehkan pelanggan mengirim kad ucapan tersebut kepada penerima di dalam negara.

"Untuk melihat video hologram 3D, pelanggan perlu memuat turun aplikasi hologram melalui aplikasi, Google Play atau Apps Store dan melekatkan projektor plastik hologram pada skrin telefon pintar," katanya dalam satu kenyataan media.

Al-Ishsal berkata, bagi meneruskan momentum tahun lepas, Pos

Malaysia turut menawarkan empat keping poskad AR yang disertakan dengan video terbaharu dalam pek Kad 3D Hologram, pelanggan perlu memuat turun aplikasi poskad AR melalui Google Play atau App Store.

"Melalui kerjasama bersama Primeworks Studios, kami turut mengeluarkan poskad edisi khas filem Melayu bertajuk Pulang yang bakal ditayangkan selepas Hari Raya. Melalui aplikasi Hologram Raya, para pelanggan akan dapat menonton tiga treler eksklusif filem ini serta sedutan pembikinan belakang tabir.

"Dengan harga RM12 setiap pek kad ucapan 3D Hologram Raya mengandungi satu kad ucapan Hari Raya, satu sampul dengan setem 50sen, satu projektor plastik hologram dan satu poskad filem "Pulang" edisi terhad.

"Kad ucapan Raya 3D Hologram boleh didapati di 400 pejabat pos terpilih atau secara dalam talian di



laman sesawang," katanya.

Beliau berkata, Pos Malaysia komited untuk memberikan pilihan kepada umum dengan menawarkan kadar pos domestik diskaun khusus untuk kad ucapan Raya pada 50 sen sekeping.

"Promosi ini khas untuk kad ucapan yang tidak melebihi berat 50 gram. Pelanggan boleh menghantar kad ucapan Raya mereka secepat mungkin untuk memastikan penghantaran yang lancar dan tepat pada masanya. Tempoh promosi untuk kadar pengeposan khas ini akan bermula dari 17 Mei hingga 12 Jun 2018," katanya.

Beliau berkata, evolusi teknolo-

gi memudahkan pelbagai urusan seharian termasuk bertukar ucapan Raya.

"Generasi Y terutamanya, sentiasa mencari sesuatu yang berbeza daripada penggunaan mesej pesanan ringkas atau media sosial. Kami di Pos Malaysia sentiasa mencabar diri untuk menawarkan pelanggan sesuatu yang unik dan berbeza.

"Sebagai penyedia perkhidmatan pos dan logistik, Pos Malaysia berada di kedudukan yang ke hadapan dalam menawarkan beberapa aplikasi peningkatan digital kepada pelanggan kami. Produk terbaharu ini membuktikan komitmen berterusan kami untuk terus berinovasi," katanya.

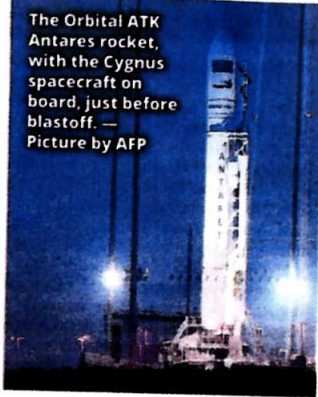
"Kami tidak sabar untuk meriahkan lagi sambutan Aidilfitri 2018 ini dan berharap gabungan kedua-dua teknologi dan tradisi menghantar kad ucapan raya ini, akan menjadikan perayaan ini lebih meriah," kata Ishsal.



LAMPIRAN 8
MALAY MAIL (WORLD) : MUKA SURAT 18
TARIKH : 22 MEI 2018 (SELASA)

Cold experiment planned as rocket blasts off

The Orbital ATK Antares rocket, with the Cygnus spacecraft on board, just before blastoff. — Picture by AFP



WASHINGTON — Food for astronauts, new space gardening gear and an experiment to test how cement forms in weightlessness were poised for the International Space Station (ISS) aboard Orbital ATK's unmanned Cygnus spacecraft yesterday.

An extreme cold experiment and a European module to invite plug-and-play research are also among the three tonnes of cargo scheduled to blast off on an Antares rocket from Wallops Island, Virginia.

The Cygnus delivery is the ninth in a series of launches by Orbital ATK, under a US\$1.9 billion (RM7.5 billion) contract with NASA to resupply the orbiting outpost. SpaceX also runs supply missions using its Falcon 9 rocket and Dragon cargo vehicle.

Cloudy weather posed a 35 per cent probability of postponing the launch, NASA said. If delayed, other opportunities to launch will open up in the coming few days.

A total of 34 new experiments are on board, including one that will create the coldest man-made temperatures anywhere in the universe, called the new Cold Atom Lab (CAL) facility, which the US space agency hopes will lead to new breakthroughs in modern physics.

"CAL creates a temperature 10 billion times colder than the vacuum of space, then uses lasers and magnetic forces to slow down atoms until they are almost motionless," NASA said in a statement.

"Results of this research could potentially lead to a number of improved technologies, including sensors, quantum

computers and atomic clocks used in spacecraft navigation."

The International Commercial Experiment, or ICE Cubes Service, is a joint venture of the European Space Agency and the Belgian company Space Application Services.

For human explorers to set up camp on Mars, they will need to build habitats to live in and places to protect their gear, and one experiment aims to test how cement acts in space and whether it will harden up and set like it does on Earth.

Plant Habitat-01, an experiment that could boost astronauts' ability to grow their own food, is also on board.

"It contains a closed environment unlike any other plant growth we have had to date on the station," said Kirt Costello, ISS chief scientist. — AFP

Great leap to the dark side

Satellite to relay communications with rover sent to the Moon

BEIJING: China launched a relay satellite that will allow a rover to communicate with the Earth from the far side of the Moon during an unprecedented mission.

The *Queqiao* (Magpie Bridge) satellite was blasted into space from the south-western Xichang launch centre in the pre-dawn hours, according to the China National Space Administration.

The satellite split from its carrier, a *Long March-4C* rocket, after 25 minutes and unfolded its solar panels and communication antennas, as it headed towards its destination, the CNSA said.

"The launch is a key step for China to realise its goal of being the first country to send a probe to soft land on and rove the far side of the Moon," Zhang Lihua, manager of the relay satellite project, was quoted as saying by Xinhua.

The satellite will relay communications between controllers on Earth and the far side of the moon,



To boldly go: The 'Long March-4C' rocket lifting off with the 'Queqiao' satellite in Xichang. — AFP

where the *Chang'e-4* lunar probe – named after the moon goddess in Chinese mythology – will be sent later this year.

Also known as the "dark side"

of the Moon, the far hemisphere is never directly visible from Earth and while it has been photographed, with the first images appearing in 1959, it has never

been explored.

The *Chang'e-4* rover will be sent to the Aitken Basin in the lunar south pole region, according to Xinhua. — AFP

LAMPIRAN 10
BERITA HARIAN (DUNIA) : MUKA SURAT 73
TARIKH : 22 MEI 2018 (SELASA)

China lancar satelit kaji bahagian gelap bulan

Shanghai: China melancarkan satelit pengganti yang direka untuk mewujudkan komunikasi antara bumi dan kajian bulan yang diatur untuk meneroka bahagian gelap bulan, kata agensi berita Xinhua.

Xinhua memetik Pentadbiran Angkasa Kebangsaan China sebagai berkata, satelit itu dilancarkan jam 5.28 pagi waktu tempatan, semalam menggunakan roket Long March-4C dari tapak pelancaran Xichang di barat daya negara itu.

"Pelancaran ini adalah langkah penting untuk China merealisasikan matlamat menjadi negara utama menghantar penyelidikan ke lokasi itu dan menjelajah jarak bulan," kata pengurus projek satelit pengganti, Zhang Lihua.

Katanya, satelit dikenali sebagai Queqiao atau Magpie Bridge akan berada di orbit pada jarak 455,000 kilometer dari bumi dan bakal menjadi satelit komunikasi pertama yang beroperasi di sana.

China mensasarkan untuk menyaingi Russia dan Amerika Syarikat (AS) untuk menjadi kuasa angkasa lepas menjelang 2030. Ia merancang melancarkan pembinaan stesen angkasa sendiri tahun depan.

Bagaimanapun, ketika China bersungguh menegaskan cita-citanya terjamin, Jabatan Pertahanan AS pula menuduh negara itu melakukan aktiviti bertujuan untuk mencegah negara lain daripada menggunakan aset angkasa lepas ketika berlaku krisis.

REUTERS



China mensasarkan untuk menyaingi Russia dan AS untuk menjadi kuasa angkasa lepas menjelang 2030.