

# Sharing knowledge and expertise

Two Bahraini engineers help construct and design Emirati mini-satellite 'DhabiSat'

● **Rocket lifts off from Wallops Flight Facility and reaches International Space Station**

● **DhabiSat aims to gather data for space research and capture high-resolution images**

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The launch of Cygnus NG-15 spacecraft, which is carrying the "DhabiSat", at Wallops Flight Facility in Virginia

Two members of the Bahrain Space Team of the National Space Science Authority (NSSA) have participated in the construction and designing of the Emirati mini-satellite "DhabiSat", which was launched on February 20, from the Wallops Flight Facility in Virginia, US and arrived at the International Space Station (ISS).

The launch marked another milestone in the UAE's space journey. Less than two weeks ago, the Emirates made history when its Hope probe successfully entered the orbit of Mars to begin a two-year data-collecting mission.

The miniature satellite DhabiSat is the second CubeSat designed and developed by students from Khalifa University of Science and Technology in



**The project aims to conduct tests on a number of technologies for outer space, such as software control systems and satellite guidance, in addition to taking pictures, as well as contributing to building national capabilities in designing, building, operating and managing satellites in the Kingdom of Bahrain and the UAE.**

Abu Dhabi with the support of the Yahsat Satellite Communications Company, "Yahsat" and Northrop Grumman International.

Bahraini Aerospace Eng. Ashraf Khater participated in the implementation of a set of structural tests and analyses to ensure the integrity of the miniature satellite's structure and all its electronic devices.

The tests are based on simulating the vibrations that the satellite is exposed to during launch, which are caused by the high pressure and intense vibrations that the carrier rocket is subjected to the satellite while penetrating the layers of the atmosphere surrounding the planet.

Eng. Khater said: "Participation in the DhabiSat project represents a unique opportunity for

the Bahrain Space Team to build experiences and gain knowledge of building satellites.

"I have had the opportunity to participate in the implementation of many analyses and tests that were carried out in the laboratories of the Khalifa University for Space and Innovation Center. During these analyses and tests, the satellite is exposed to various effects that simulate those that the satellite carrier rocket experiences during its launch into space, including vibrations and the effects of linear acceleration.

"We also applied effects that simulate those that rockets are exposed to during their transport to airports and space launch bases, and the tests and analyses that have been carried out have shown that they are in compliance with standard specifications. This is a great achievement for me and I am very happy to represent my country, Bahrain, in this scientific project."

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Another Bahrain Space Team member, Eng. Ali Al Qaraan, also participated in designing an al-

“This is a great achievement for me and I am very happy to represent my country, Bahrain, in this scientific project.”

- ENG. ASHRAF KHATER



“We, as a team, hope will be the nucleus for creating an advanced and sustainable space sector in the Kingdom of Bahrain.”

- ENG. ALI AL QARAAN



gorithm that aims to estimate the values of some variables in the satellite system through statistical operations and without the need for a special sensor for these variables.

This algorithm relies mainly on one of the most famous statistical mathematical tools in the science of statistical estimation

theories called "Kalman Filter" which is used in many engineering and non-engineering applications in today's world.

Eng. Al Qaraan explained: "The goal of such algorithms is to increase the accuracy and efficiency of control systems and determine the directions in satellites."

## Tender Board opens envelopes for 33 bids for five tenders



The bid opening process

● **Providing fair treatment to all suppliers and contractors**

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The Tender Board, the independent regulatory body tasked with supervising government bidding practices, yesterday opened envelopes of 33 bids for five tenders offered by five administrators.

The committee's agenda included the opening of a tender for the Ministry of Health regarding the supply and installation of the radiology laboratory and various medical devices for the new multiple sclerosis hospital, and 15 bids were received for this tender.

The committee also opened a tender for the Ministry of Education regarding the renewal and provision of Oracle licenses for three years from 2021

to 2023, and two bids were received for this tender.

The Al Fateh Committee opened a tender for the Electricity and Water Authority regarding the expansion of the advanced infrastructure system for smart meters, and three bids were received for this tender.

A tender was also opened for the Telecommunications Regulatory Authority regarding the appointment of a consultant to develop the security strategy for the telecommunications sector for the years 2022-2025, and nine bids were received for this tender.

Finally, the committee opened a tender in the oil and gas sector for Tatweer Petroleum for consulting services specialised in the oil and gas sector. Four bids were received for this tender.

The bid opening process was attended by a number of representatives of the administering authorities and the companies participating in the tenders.

## Ministry of Works implementing infrastructure projects in Al Aker

● **Paving and road reconstruction projects amount to BD883,000**

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Many infrastructure projects have been implemented in the eastern and western region of Al Aker and more are underway under the government's programme for the years 2021-2022.

In response to MP Ammar Abbas's question about development works in Al Aker, the Minister of Works, Municipalities Affairs and Urban Planning, Eng. Issam bin Abdullah Khalaf, said that the ministry had implemented many paving projects and re-constructed a



Drainage work in Al Aker

number of roads in the region at a total cost of BD883,000.

These projects include paving Road 2628 and surrounding roads, re-establishing Road 2609, re-paving Road 45 and re-paving Road 2617 and Road 2610 at Block 626 in Al Aker, as well as re-paving Road 2347 and surrounding roads, paving

Road 2358 and surrounding roads, paving Road 2368 and surrounding roads, re-paving Road 2459 at Block 624 in Al Aker.

Minister Khalaf added that there are also maintenance projects for a number of roads included in the government pro-

gramme for this year and next year, including the maintenance of Al Aker West Street, re-paving Road 2440 and surrounding roads, and re-paving Road 2609 and the roads surrounding Complex 626.

These include the project of paving dirt roads in Complex 624, where the preparation of designs was completed and the approval of all other service departments was obtained.

The project includes paving works and the construction of roads with a length of six kilometres to serve 350 housing units, in addition to laying a network for rainwater drainage, providing lighting poles and establishing some heights to reduce the speed and put the necessary regulatory and warning traffic signs to achieve the required safety.

## Capital Governorate road works completed

● **It will facilitate the flow of traffic and raise levels of safety in the area**

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The maintenance and development road work in Complex 745 and Sayyid 745 areas in the Capital Governorate have



Well-paved roads in the area after the project completion

been completed.

This was according to Eng. Sayed Badr Alawi, Director of

Roads Projects and Maintenance Department at the Ministry.

He noted that the project aims to develop and improve internal roads in the region to facilitate the flow of traffic and raise levels of safety and performance on the road network in order to preserve the safety of its users, in line with the Ministry's plan to implement infrastructure projects.

The project covers a length

of about 3.4 kilometres with approximately 185 housing units. It was implemented at a cost of BD500,000.

Eng. Alawi indicated that the project's works included rebuilding roads, replacing the damaged layer with new ones that fit the Ministry's specifications, and providing a rainwater drainage system on Road 4561 and Road 4571, as well as developing sidewalks and paving them with bricks.