

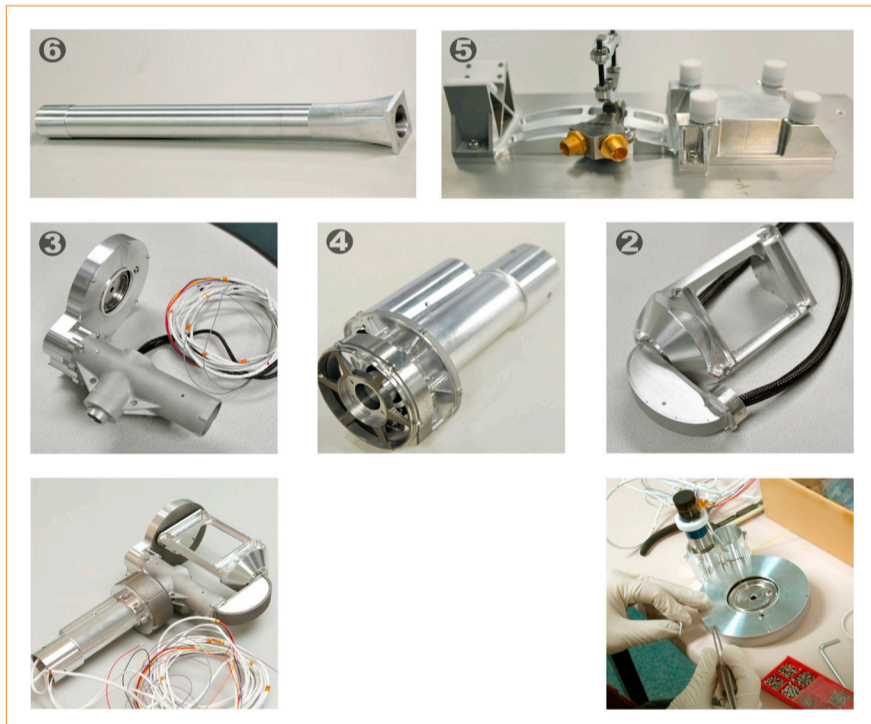
相機指向機構系統 Camera Pointing System (CPS)

探索月球 — 月表監測及月貌全景影像拍攝系統 Lunar Exploration Tool for Moon Surface Surveillance and Panoramas

相機指向機構系統高85厘米、寬27厘米、深16厘米、重2.8公斤，安裝於嫦娥三號的著陸器頂部，系統能夠俯仰轉動120度，偏航轉動350度，負責拍攝月貌全景影像，及整個巡視器（月球車）釋放過程和月面運動的監視。著陸器與月球車分離後，相機指向機構系統會配合著陸器的其他元件進行全面展開就位探測工作。



相機指向機構系統
Camera Pointing System



相機指向機構系統組件
Parts of CPS

The Camera Pointing System (CPS) measures 85 cm height by 27 cm width by 16 cm depth and weighs 2.8 kg. Mounted on the upper part of the lander of Chang'e-3 and capable of moving vertically by 120 degree and rotating sideways by 350 degree, it is deployed for capturing panorama images of the moon landscape as well as movement of the rover. Upon the release of the rover, the CPS started working together with other parts of the lander for in-situ lunar exploration.

Principal Investigator

Prof. Kai-leung YUNG

Department of Industrial and Systems Engineering

Contact Details

Institute for Entrepreneurship

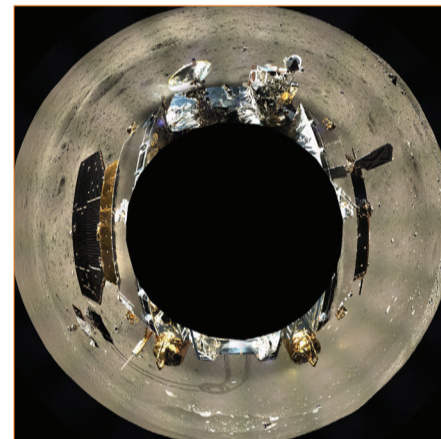
Tel: (852) 3400 2929 Fax: (852) 2333 2410 Email: pdadmin@polyu.edu.hk

特色與優點

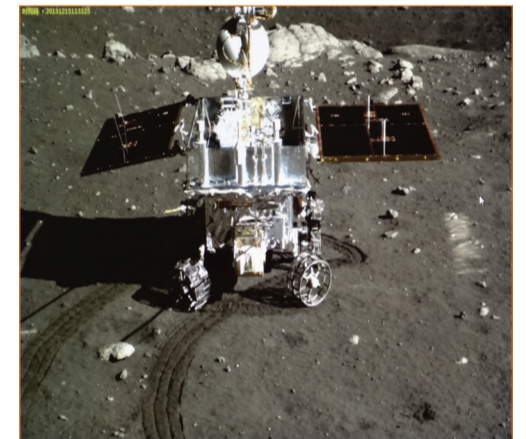
- 採用一體化設計，有效提高整體剛性
- 全內部走線及線纜安全管理設計，減低損壞風險
- 高強度、輕量化、低功耗，令結構更緊密，並提升操作的精密度
- 多角度表面熱控，能抵受月球表面巨大的溫差

應用

在中國探月工程二期中，負責月球車釋放過程監視、拍攝著陸器周圍月貌全景影像及月球車運動監視



相機指向機構系統拍攝的月貌全景圖
Panorama image of moon captured by CPS



相機指向機構系統拍攝的月球車相片
Photo of the rover captured by CPS

Special Features and Advantages

- Integrated framework design with internal mechanisms to effectively raise the overall stiffness
- Internal routing for safer cable management to avoid exposed cable damage
- Compact structure with high strength, light-weight, low power consumption to enhance precise operation
- Multi angular surfaces for thermo control by simple rotation of the axes under the sun and allow vast temperature difference on the moon

Applications

The CPS is deployed for capturing panorama images of the moon and monitoring the lunar rover's movement in the second phase of China's lunar exploration programme

