

29th Workshop on Space Technology for Socio-Economic Benefits: "Access to Space for All: Bridging the Space Divide"

Optical payloads and An innovative deployable hexagonal shape solar panel system for 1U Cubesat

➤ One of the main Cubesat bus limitations is the available on-board power. The Cubesat performance and the mission scenario opened to these small satellite systems could be greatly enhanced by an increase of the available power. we describes here the design of a solar panel system where the celul solar are hexagonal shape inspired from james webb mirror (fig1) , that can be potentially used on board single (1U), double(2U) and triple (3U) Cubesats. the prototype of the inovative system will be realized for a 1U Cubesat and will be testesd a test-bed for the solar panel deployment testing will be developed, supporting the solar array during deployment reproducing the dynamical situation in orbit

➤ The process of choosing the best payload (in this case camera (fig3)) for a cubesat follows through a section of decision-making: What operations should the camera be able to perform and what should the camera do to reach the goals of the project. Our solution it offers 3 sub-cards of size 5x7cm each which are arranged as follows (fig2):

- EspCam board with the Ra-02 transceiver (Lora 433 Mhz + wifi)
- Nano receiver board with nRF95 transceiver (866 Mhz frequency)
- Esp32 reception/transmission card with the nRF95 transceiver (866 Mhz frequency + wifi)

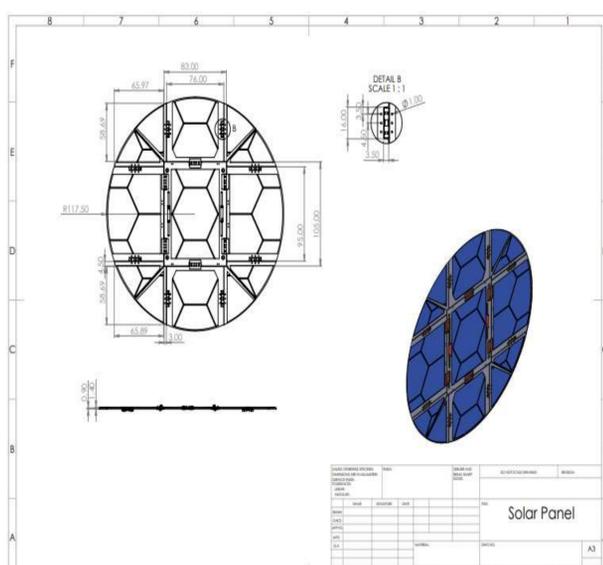


Fig.1. James Webb solar panel system

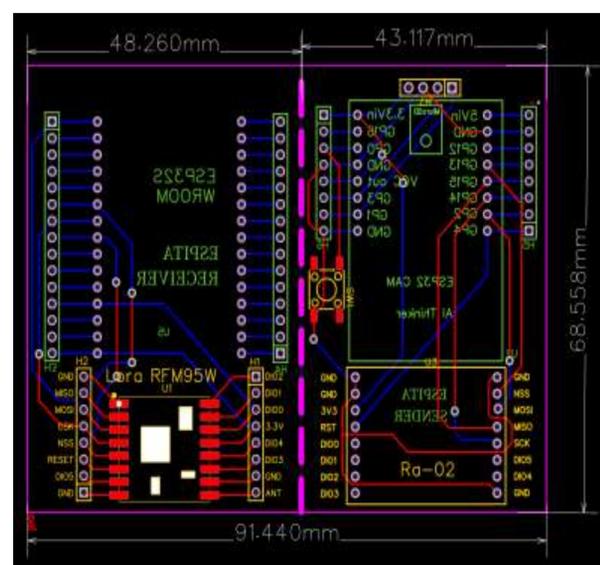


Fig.2. 3D color PCB

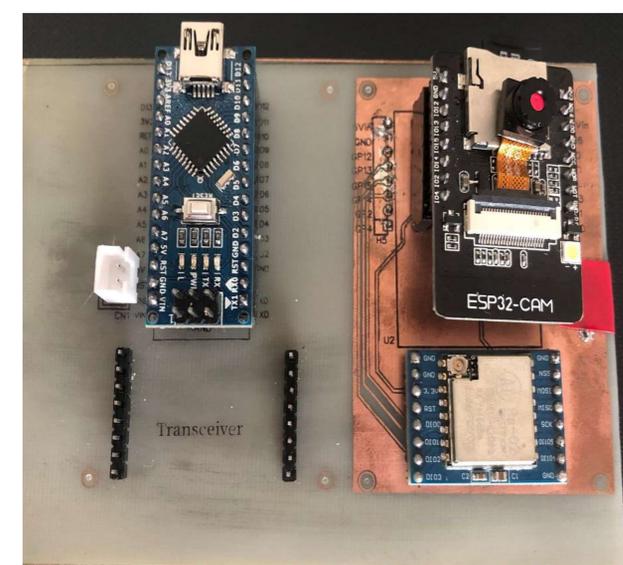


Fig.3. Camera module