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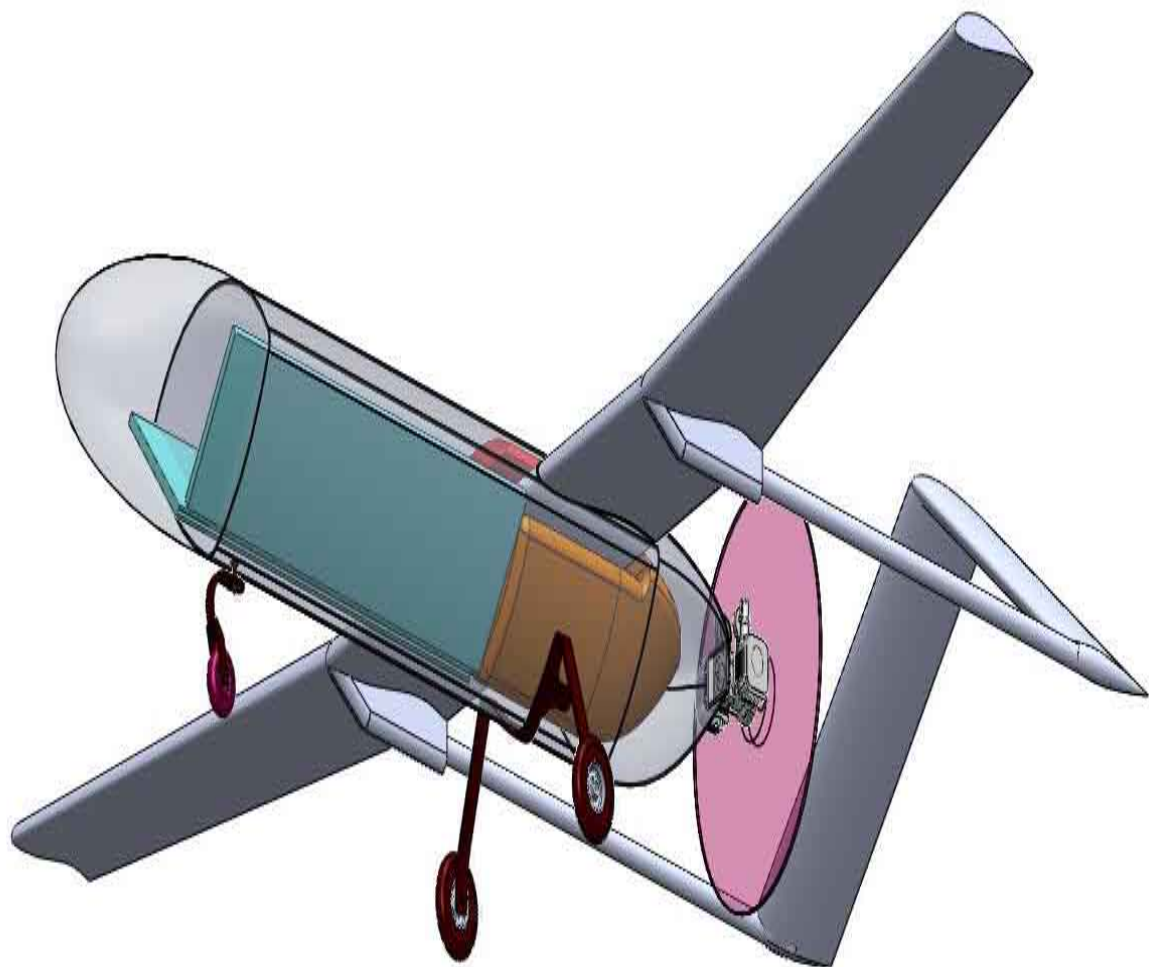
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Development of CP-SAR onboard UAV for Ground Experiment

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Synthetic Aperture Radar (SAR) is a multi purpose sensor that can be operated in all-weather and day-night time. Recently, the SAR sensor is operated in linear polarization (HH, VV and its combination) with limited retrieved information. The characteristics of the conventional SAR sensor is bulky, high power, sensitive to Faraday rotation effect etc. Recently, we are developing the Circularly Polarized Synthetic Aperture Radar (CP-SAR) onboard microsatellite to retrieve the physical information of Earth surface, especially the Asian disaster area in the future. In this research, the CP-SAR sensor is developed to radiate and receive circularly polarized wave. The sensor is designed as a low cost, simple, light, strong, low power or safe energy, low profile configuration to transmit and receive left-handed circular polarization (LHCP) and right-handed circular polarization (RHCP), where the transmission and reception are both working in RHCP+LHCP. Then these circularly polarized waves are employed to generate the axial ratio image (ARI). This sensor is not depending to the platform posture, and it is available to avoid the effect of Faraday rotation during the propagation in ionosphere. Therefore, the high precision and low noise image is expected to be obtained by the CP-SAR. For this purpose, we are developing the CP-SAR onboard unmanned aerial vehicle (UAV) for ground testing of this sensor. In this paper, we introduce the present result of this CP-SAR UAV.

Keywords: CP-SAR, UAV, Microsatellite