

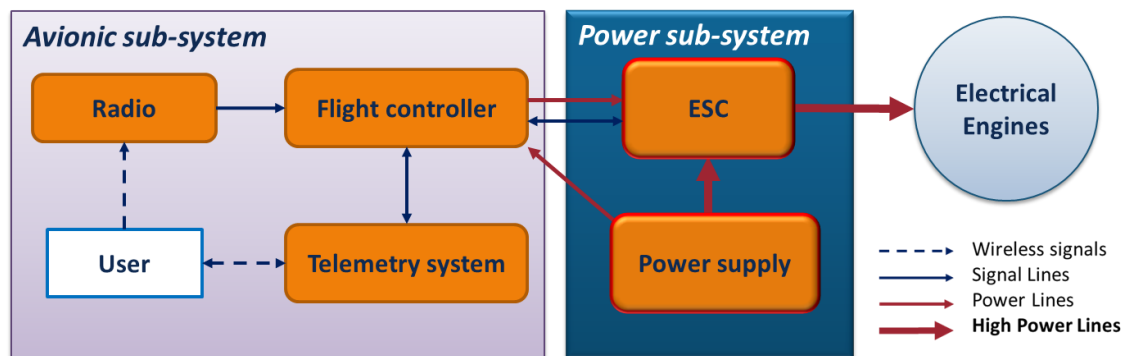
Engineering requirements for avionics of unmanned aerial system

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Within the framework of the European Project WInSiC4AP, the Unmanned Aerial Vehicle (UAV) use case plays an important role in defining some of the specific constraints that on-board electronics systems must obey. Then it's relevant to have clear view of the UAVs classification and their main characteristics especially with the focus of an Electrical UAV.



Main component of the power supply are batteries, whose requirements must fulfil the tight design constraint such as lightweight, safety, pressure and temperature tolerance, cost effectiveness and cycle life. A quick look to available chemistry technology as well as market overview has been described.

Regarding the power sub-system, the key points where efficiency is a challenge has been spotted and a SiC based solution has been summarized. Among the different advantages and drawbacks of this choice, one of the most sensitive issue is related to the Bias Threshold Instabilities (BTI) that affect Silicon Carbide MOSFETs. Hence a set of design requirements for the implementation of a portable and cheap electronics system has been described. It will allow to carry out a fast yet accurate experimental measurements test campaign in order to evaluate the static and dynamic impact of BTI on SiC MOSFET performances.

MAIN REFERENCE

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