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RESEARCH ON AVIONICS AND CONTROL ARCHITECTURE FOR LOCOMOTIVE AND
MECHANISM SYSTEM OF LUNAR ROVER

Abstract

This paper presents the avionics and control architecture for Locomotive and Mechanism System of Lunar Rover.The lunar rovers has six cylinder wheels,solar array,robot arm and mast.With FPGA(Field Programmable Gate Array) for lower lever control and DSP(Digital Signal Processor) for higher level control, the whole hardware is very intelligent.By using the high capacity of FPGAs,the additional harware is such as communication controller and PWM generators,can be implemented in a single chip and harware system is more flexible and compact.Furthermore,according to the locomotive and mechanism system of the lunar rovers,a hierarchical software software architecture has been established to perform all data processing and control of the lunar rover.