

ATmega328 based robust Electronics speed controller for BLDC motors

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In multi-rotors, multiple ESCs' are being used for controlling the motors. It would be easy for most drone and RC builders to buy a low cost ESC pre-shelf. However these low-end ESCs' offers poor efficiency and are not suited for prototype development. We observed the general schematic of an electronic speed controller and determined to replace the microcontroller that will make the micro-processing part. We attempted to design a speed controller with an ATmega328 (low power consumption and high performance) chip as the microcontroller. Estimation shows that the cost of an individual ESC can be reduced by up to 20% and the robustness of the AT mega chip makes the ESC much more efficient when comparing to the low-end ESCs available on the market. When manufactured in bulk without compromising the efficiency, it is entirely possible to fabricate an affordable electronic speed controller.

Keyword: ATmega328, ESC, RC drones