

Design A Hybrid Drive System On A 110 CC FI Matic Motorcycle Using A 1200 Watt BLDC Hub Motor

by

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ABSTRACT

The hybrid drive system is a combination of more than one power source in the vehicle. One of the hybrid drive systems that has been used is the combination of an internal combustion engine (ICE) with an electric motor. In this study, a hybrid drive system was created with an automatic controller based on Arduino microcontroller on an FI 110 CC automatic motorbike using a 1200 Watt BLDC electric motor. Then the purpose of making this system is to increase mileage and reduce the use of fuel oil in vehicles, especially motorbikes. The method used is experimental, namely by using some of the existing parameters on motorcycles and electric motorbikes. From the research that has been done, the results show that if the electric motor battery is not read or detected, the microcontroller will immediately turn on the gasoline engine starter system. If the system is running well and the propulsion system initially uses an electric motor, the microcontroller will only start the gasoline engine starter system when the battery voltage reaches the specified minimum voltage, which is around $\leq 47V$. When the drive system uses a gasoline engine, the gas throttle of the electric motor will be disconnected and the regen feature of the electric motor will turn on to recharge the battery. Then when the battery reaches the specified minimum voltage or around $\geq 53V$, the microcontroller will turn on the electric motor and turn off the gasoline engine.

Keywords: Hybrid, Internal Combustion Engine, BLDC Electric Motor.