

The design and simulation of smart cooling system for motorcycle

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ABSTRACT

The goal of this thesis is to design a thermal controller of smart cooling system for 250c.c. scooter engine. In order to reduce fuel consumption and emission through a better control of coolant flow rates and temperature. Using a sever-motor water pump and an electrically driven thermostat which controls the flow distribution between the radiator and its bypass. The MATLABSimulink Real-Time windows Target controller was applied to design the control algorithms for the smart water pump and electrically thermostat. Using the engine thermal dynamic models of ADVISOR to verify the feasibility of proposed controller. It will be presented to estimate the temperature of cylinder, engine block, engine accessories and hood for smart cooling system. Finally, the experiment results showed that the smart cooling system allows to improve fuel consumption by 5% and 1.15% during low speed and heavy load.

Keywords : Smart Cooling System ; Engine Thermal Control ; MATLABSimulink ; ADVISOR

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