

APPLICATION OF VECTOR CONTROL METHOD FOR DEVELOPING ANFIS OBSERVER AS SPEED SENSOR FOR INDUCTION MOTOR SPEED CONTROL IN ELECTRIC VEHICLE

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ABSTRACT

There is a growing interest in electric vehicles due to environmental concerns. Recent efforts are directed toward developing an improved propulsion system for electric vehicles applications. This paper is aimed at developing the system design philosophies of ANFIS observer as speed sensor. Now the induction motor is growing up to use as propulsion in the electric vehicles. The simple method to develop observer for detects the speed of Induction motor as propulsion in the electric vehicle is proposed in this paper, vector control method is one's of the method which developing in this paper. Direct field-oriented induction motor drive system need rotor flux observer and rotor angular speed identifier. ANFIS is used for identifying parameter dynamics and system variable estimation, linear either non-linear. ANFIS with back propagation learning algorithm has applied to estimate flux rotor and identify rotor angular speed of three-phase induction motor. The simulation result is found well for the speed up to 200 rpm, and no good result for the speed less than 200 rpm. There is a growing interest in electric vehicles due to environmental concerns. Recent efforts are directed toward developing an improved propulsion system for electric vehicles applications. This paper is aimed at developing the system design philosophies of ANFIS observer as speed sensor. Now the induction motor is growing up to use as propulsion in the electric vehicles. The simple method to develop observer for detects the speed of Induction motor as propulsion in the electric vehicles are proposed in this paper, direct field-oriented is one's of the method which developing in this paper. Direct field-oriented induction motor drive system need rotor flux observer and rotor angular speed identifier. ANFIS is used for identifying parameter dynamics and system variable estimation, linear either non-linear. ANFIS with back propagation learning algorithm has applied to estimate flux rotor and identify rotor angular speed of three-phase induction motor. The simulation result is found well for the speed up to 200 rpm and no good result for the speed less than 200 rpm.

Keywords: Observer, Vector control, speed sensor observer, ANFIS