A sensorless speed estimation for brushed DC motor at start-up

Abstract

Despite the fast growing implementation of brushless DC motor, the older brushed DC motor is still relevant in many commercial, industrial and hobbyist applications due to low-cost and simplicity. Many brushed DC motor applications require precise speed and position control, thus requiring a sensor feedback. Commonly a separate rotary encoder is required to provide speed and positional feedback to the system with additional cost. Therefore, researchers strive to arrive with better and more accurate sensorless speed and position measurement for brush DC motor. However, researchers neglected the measurement of brushed DC motor during starting which is vital for many day-today applications. Hence in this paper, a novel sensorless speed estimation method for brushed DC motor at Starting is presented