ABSTRACT

The 8-Puzzles game is a game that is widely known not only in Indonesia but even in the world. Modern 8-Puzzles games have been downloaded up to 100 million times on the Play Store platform. However, there is no 8-puzzles game that is played by tilting or rotating the device. This can be an opportunity for innovation by implementing accelerometer sensors in the game. However, accelerometers are very sensitive to changes that occur so that sometimes they have results that are not in accordance with the user's wishes. Therefore, an additional method is needed to be able to maximize the integration by adding Proportional Integral Derivative (PID) Control. The method has been widely used especially in industrial fields such as automation and robotics. Its simplicity and ease of implementation make it favored over other methods. Many industrial devices can be linearized without much error. With the accelerometer base controlled by PID in the 8-puzzles game, its implementation in stabilizing the game control in various test scenarios will be investigated. In this study, the implementation of an accelerometer-controlled 8-puzzles game was successfully carried out albeit with a low percentage of correct movements. Subsequently, the PID control method was applied in the game and resulted in an increase in the percentage of correct moves by almost 50%.

Keywords: sensitivity, accelerometer, PID control