

## ABSTRACT

ABU Robocon is a robotics competition in Asia - Pacific organized by the Asia-Pacific Broadcasting Union (ABU). In 2023, ABU Robocon is holding a contest with the theme "Casting Flower over Angkor Wat". The challenge of this year's competition is the obstacles on the playing field. A mobile robot based on mecanum wheels will be designed to be able to pass through obstacles on the playing field. Obstacles on the playing field include; flat surface, inclined obstacle and stair – like obstacle. Mobile robot is designed to use PID control in mobilizing on the playing field. The results of the built mobile robot can run at a stable speed on a flat surface. The Mobile Robot successfully crosses the inclined obstacle with a duration of 8 seconds – 12 seconds. The success of the mobile robot in passing the stair field is 40%.

Keywords: *mecanum wheels, mobile robot, control design, ABU Robocon 2023*