Problem Definition:

The objective of this study is to design and implement an autonomous checkers-playing system utilizing a Universal Robot (UR) platform. The system aims to enable the UR robot to optimize its gameplay strategy based on previous game experiences.

Methodology:

Utilization of an Atmega microcontroller for communication between the controlling system and the UR robot.

Development of C++ code to facilitate precise movement and gameplay functionalities of the robot.

Design and fabrication of a specialized 3D-modeled gripper for manipulating the checkers pieces during gameplay.