

Implementation of Autonomous Robotic Arm for Nerenchi Board Game

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Sri Lankan board games have a special place in Sri Lankan traditions. Peralikatuma, Olinda Keliya and Nerenchi are some examples for these board games. Among these games, Nerenchi is one of the oldest board games, and it is even mentioned in Sri Lankan ancient textbooks. It is a board game that can be played by up to two players. Playing board games like Nerenchi helps us to improve our soft and tactical skills. With the improvement of social media and video games, the new generation distanced from these games. Because of these old folk games like Nerenchi on the brick of existence. It is urgent to use new technologies to attract the young generation to these games. A web-based game that can be played Nerenchi game up to 2 players introduced to overcome this issue. UI/UX of that web-based game is not up to date and that it's difficult to attract the new generation. This paper discussed a robotic solution to automate the Nerenchi board game. The proposed system consists of two main parts. They are smart Nerenchi board and robotic arm. Smart Nerenchi board consists of 24 IR sensors which are used to detect the Nerenchi pieces on the board and are powered by Arduino mega board. A fully 3D-printed 5 DOF robotic arm was used for this system. Arduino Mega board is also used in the robotic arm to control the function of the servo motors. The proposed system is going to test in laboratory conditions and compare the detection accuracy with the image processing approach.

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