

# Thambot: A Robotic Approach for Thammattama

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Sri Lanka has a unique music culture that is based on traditional musical instruments. Traditional drums take a significant position as they are used for both religious and cultural occasions from the ancient time. At present, this precious music culture is on the decline, unfortunately, due to the difficulty of finding good and talented traditional drum players and as a result, these traditional drums and its culture is dying out. This paper presents an automated robotic system named Thambot that can be used to play Thammattama, which is one of the traditional drums in Sri Lanka. The Thambot consists of two robotic arms that are holding the two sticks of the Thammattama in-order to play the instrument like a drummer. The Thambot system has been developed to play a standard drumbeat that is commonly played using the Thammattama. As the first step of the research, important characteristic factors have been identified on the Thammattama, including its musical notes, and drum locations where sound is produced and drumming styles. The robotic arms of the Thambot are capable of moving along x and y-axis and cover a 2D space to produce the correct sound by hitting on the drum faces of the Thammattama. Thambot has been designed using PIC 16F877A microcontrollers with several other electronic components such as solenoids, relays and servo motors. The system has been tested in a laboratory environment, and successful results were obtained.

**Keywords:** Robotics, Robotic Arms, Thammattama