ME366:Electro-Mechanical System Design and Practice

PROJECT CARROM BOT

An Arduino Based Mechanical robotic arm mounted on a cart with slot for carom pieces

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ACKNOWLEDGEMENT

We would like to thank our respected teachers.

- Dr Kazi Arafat Rahman, Assistant Professor
- Mantaka Taimullah, Lecturer
- Priom Das, Lecturer

OBJECTIVE

- To arrange carrom discs for playing carrom

COMPONENTS USED

- Arduino Uno
- MG996R 10kg Servo Motor
- Nema-17 Stepper Motor
- 12V Vacuum Pump
- L298n Motor Driver
- DRV8825 Stepper Motor Driver
- 85mm Wheels
- Suction Cup
- Jumper Wires
- Electrical Wires
- DC Buck LM2596 DC-DC Buck Converter Step Down Module
- Switch

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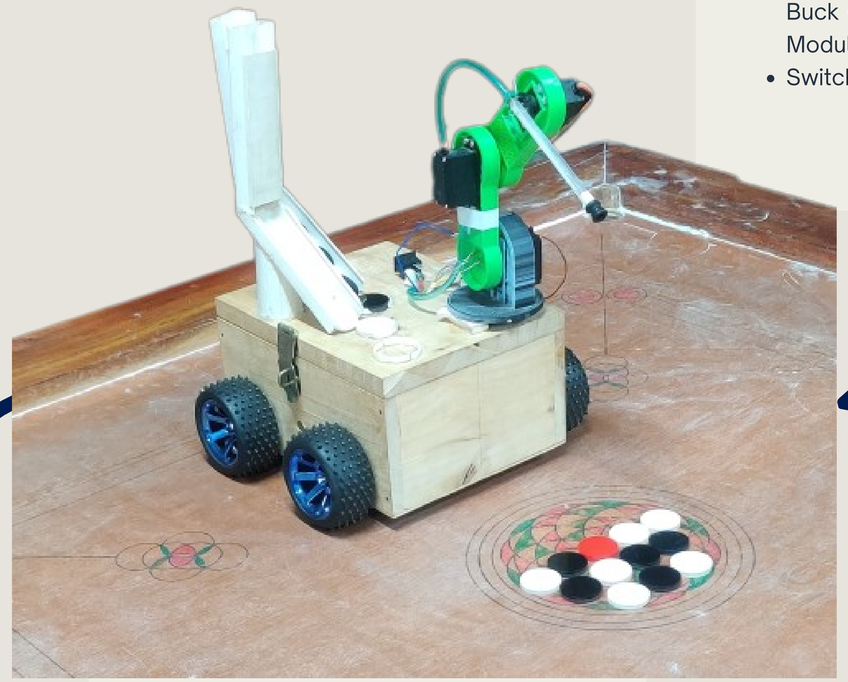

HOW IT WORKS

1. Stepper motor turns ON
2. Takes the COBOT to Centre of Carrom Board
3. Servo rotates to take mechanical arm to pick up position
4. Vacuum pump turns ON
5. Picks a disc
6. Servo rotates the arm to drop off position
7. Vacuum pump turns OFF
8. Drops the disc
9. After arranging a line, the bot moves backward
10. Repeat.

APPLICATION

IN CARROM SPORTS, IT CAN BE USED TO ARRANGE THE CARROM DISCS

CHALLANGES FACED

- Coordinating 3 different types of motors
- Choosing Stepper Motor Driver
- Connection of Jumper Wire
- Jerking of Servo motor
- Finding suitable Suction Cup

FURTHER IMPROVEMENT

- We can make the sorting faster with better quality servo motor
- The bot can be used for sorting purposes