**Project**

**Automatic Chess Board.**

**Aim:**

To create an automated chessboard that detects player moves using sensors, calculates responses via AI or APIs, and moves pieces with electromagnets for a seamless and intelligent gameplay experience.

**Components Required:**

- Microcontroller (esp32/raspberry pi)

- Wires

- Breadboard

- LEDs

- Servo motors

- Electromagnets

- Custom made chess board

- Belts

- Gears

**Abstract:**

This project involves developing an automatic chessboard that integrates sensors, actuators, and real-time artificial intelligence for a seamless chess-playing experience. The chessboard will detect the player's moves through a grid of sensors embedded beneath the surface. Each chess piece will contain a magnet, and an array of electromagnets below the board will facilitate precise, automated movement.

The computer's moves will be determined using pre-defined algorithms or by leveraging external APIs, to access advanced AI engines capable of calculating optimal moves. Once the computer’s response is decided, the system will activate the appropriate electromagnets to move the piece to its designated position, creating a hands-free and interactive experience.

This project showcases the integration of robotics, AI, and electromagnetism to produce a futuristic chess platform. It aims to deliver a captivating gaming experience for casual players and enthusiasts, serve as a teaching tool for chess strategy, and demonstrate practical applications of sensor-actuator systems in interactive entertainment.

**Circuit Diagram:**

