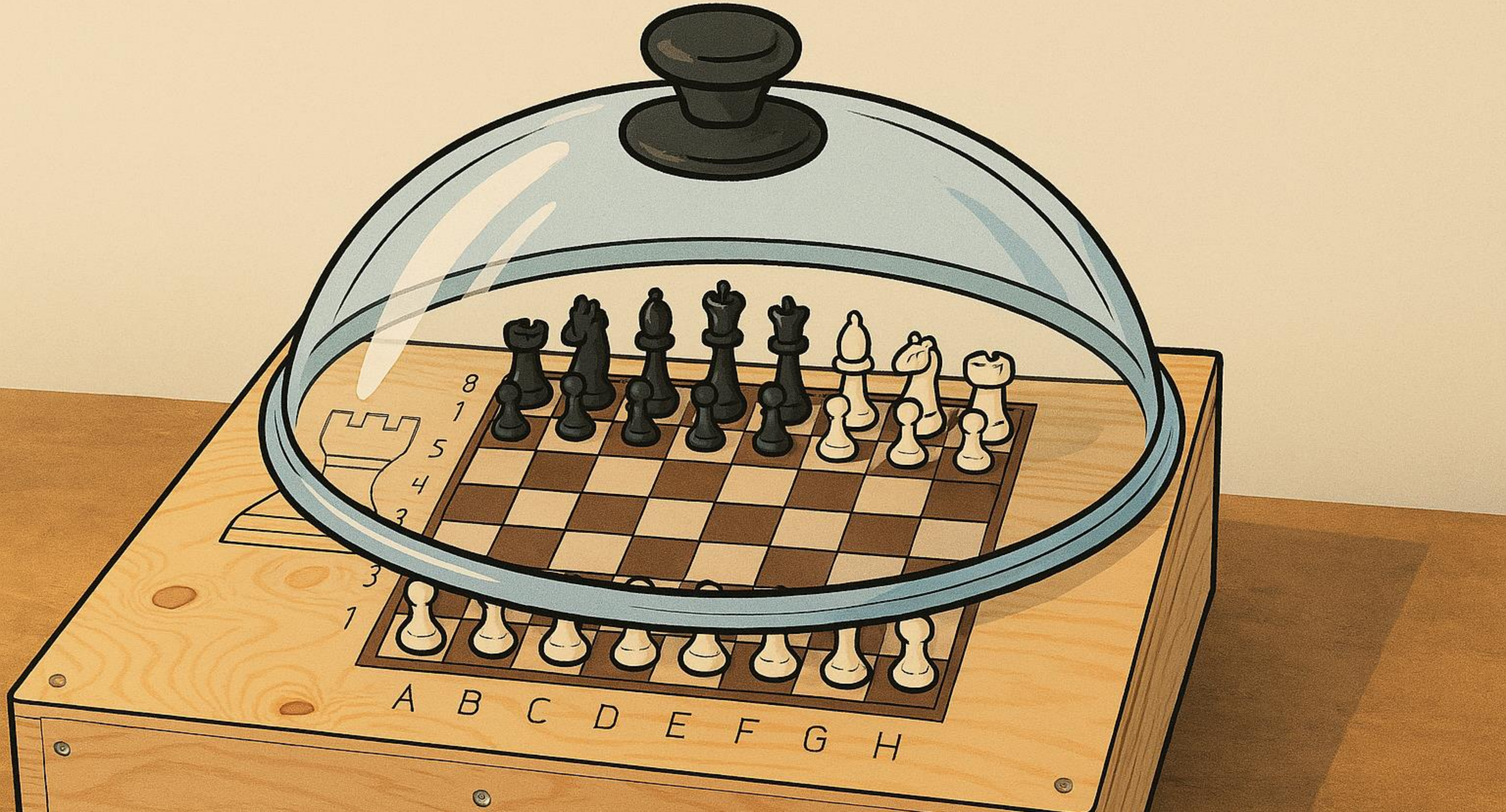
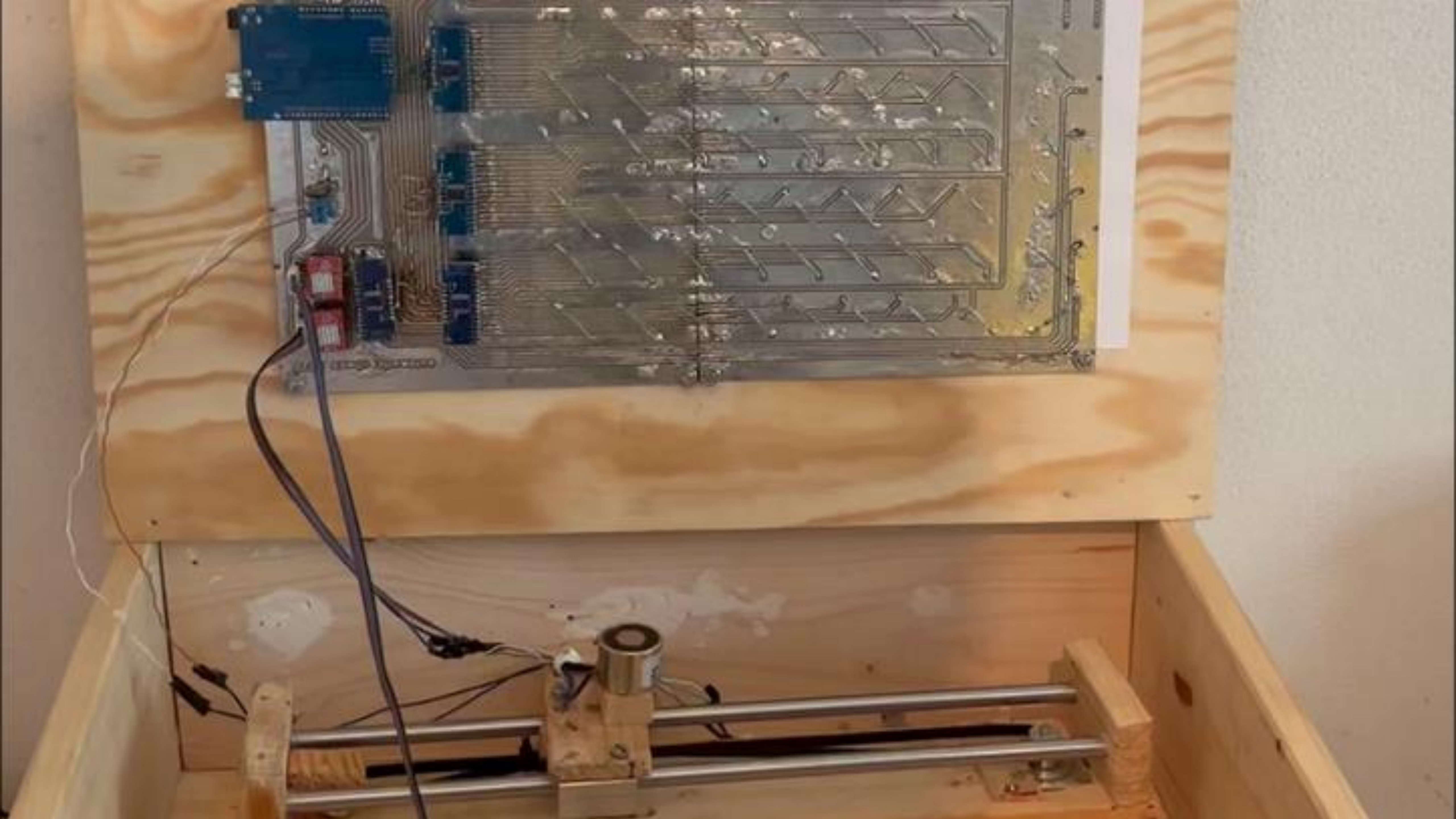
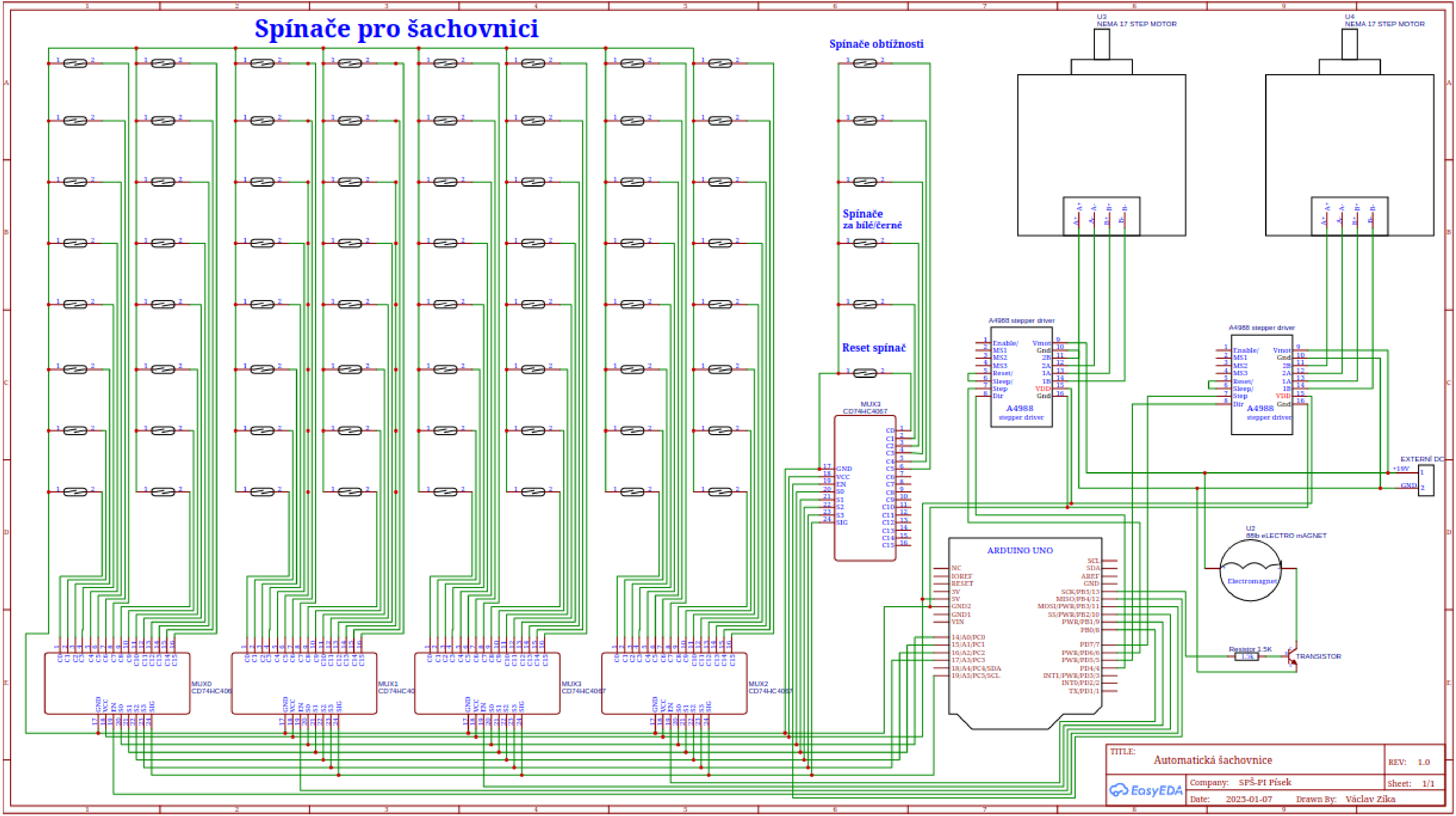
Samořídící šachovnice

Václav Zíka

SOČ
středoškolská
odborná činnost


8
1
5
4
3
3
1
A B C D E F G H





TITLE: Automatická šachovnice

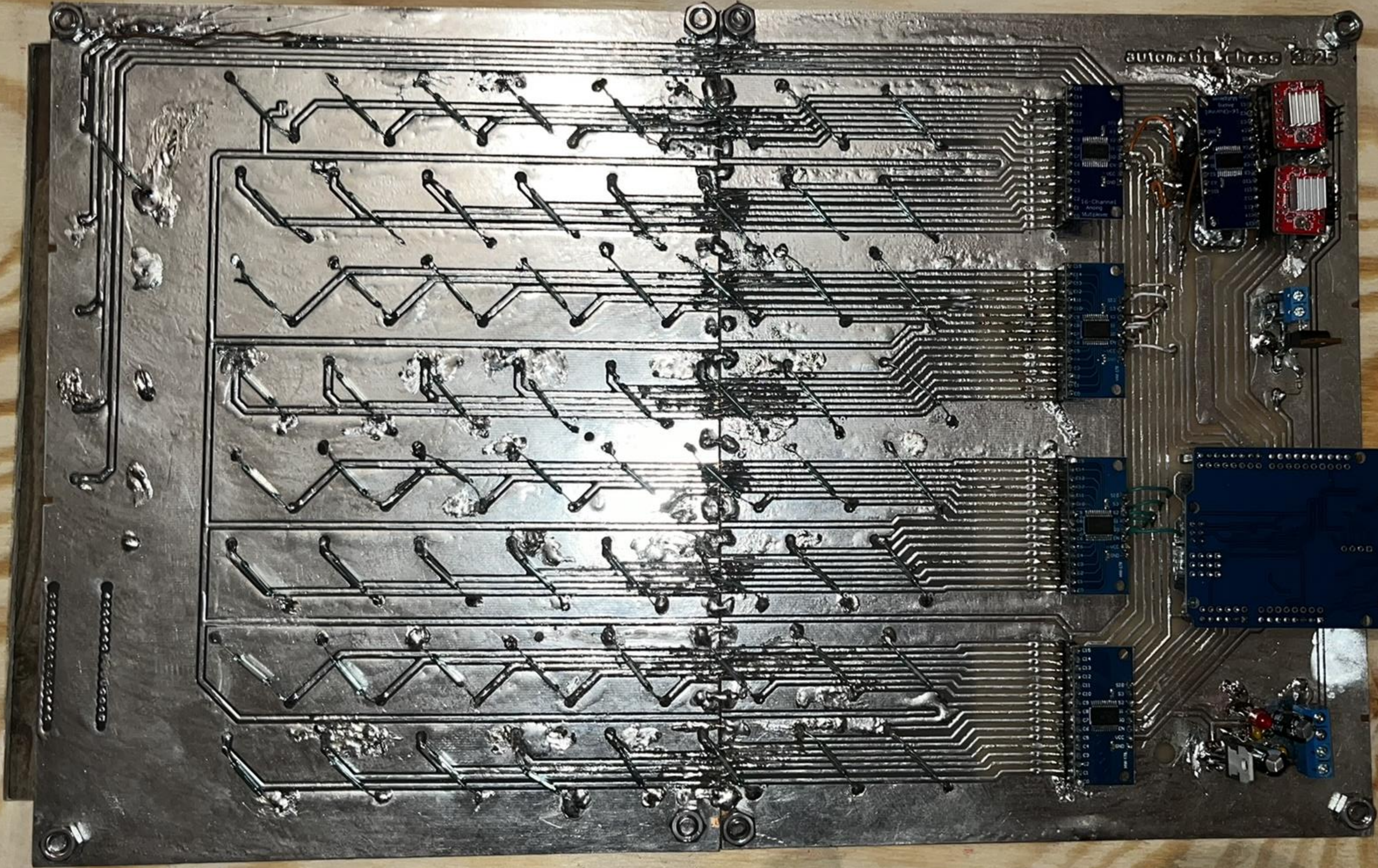
REV: 1.0

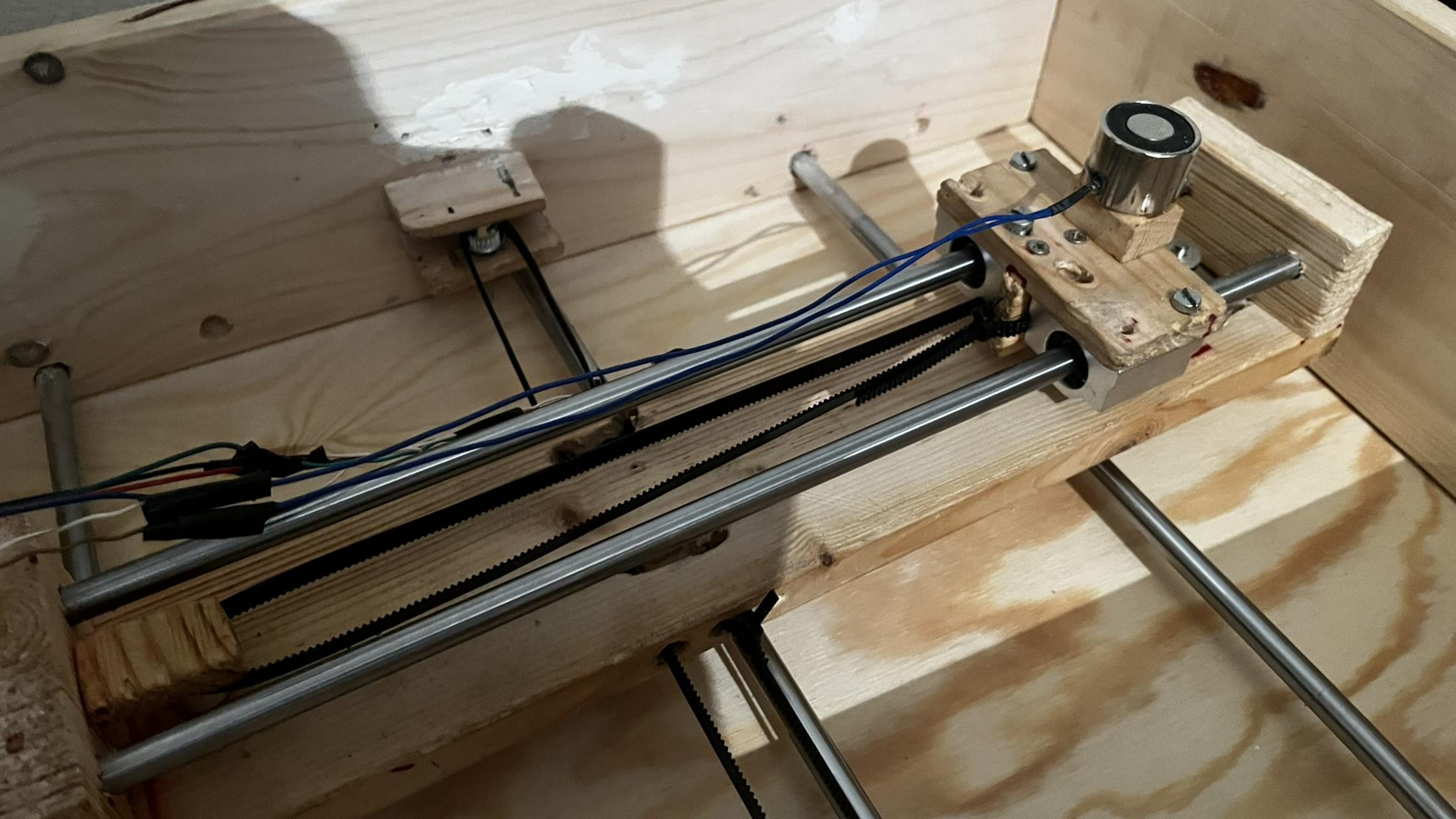
Company: SPŠ-PI Písek

Sheet: 1/1

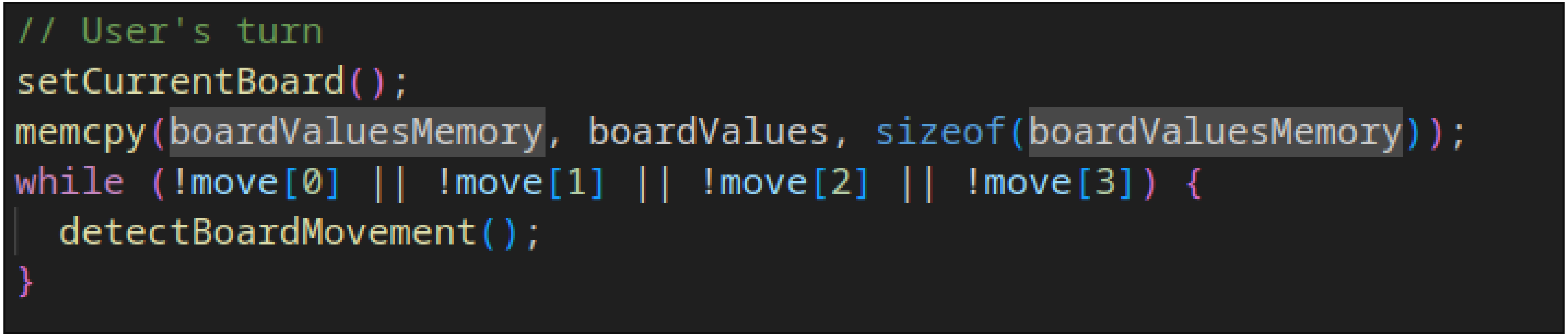
Date: 2025-01-07

Drawn By: Václav Zika


automatic chess 2025
16-Channel Analog Multiplexer

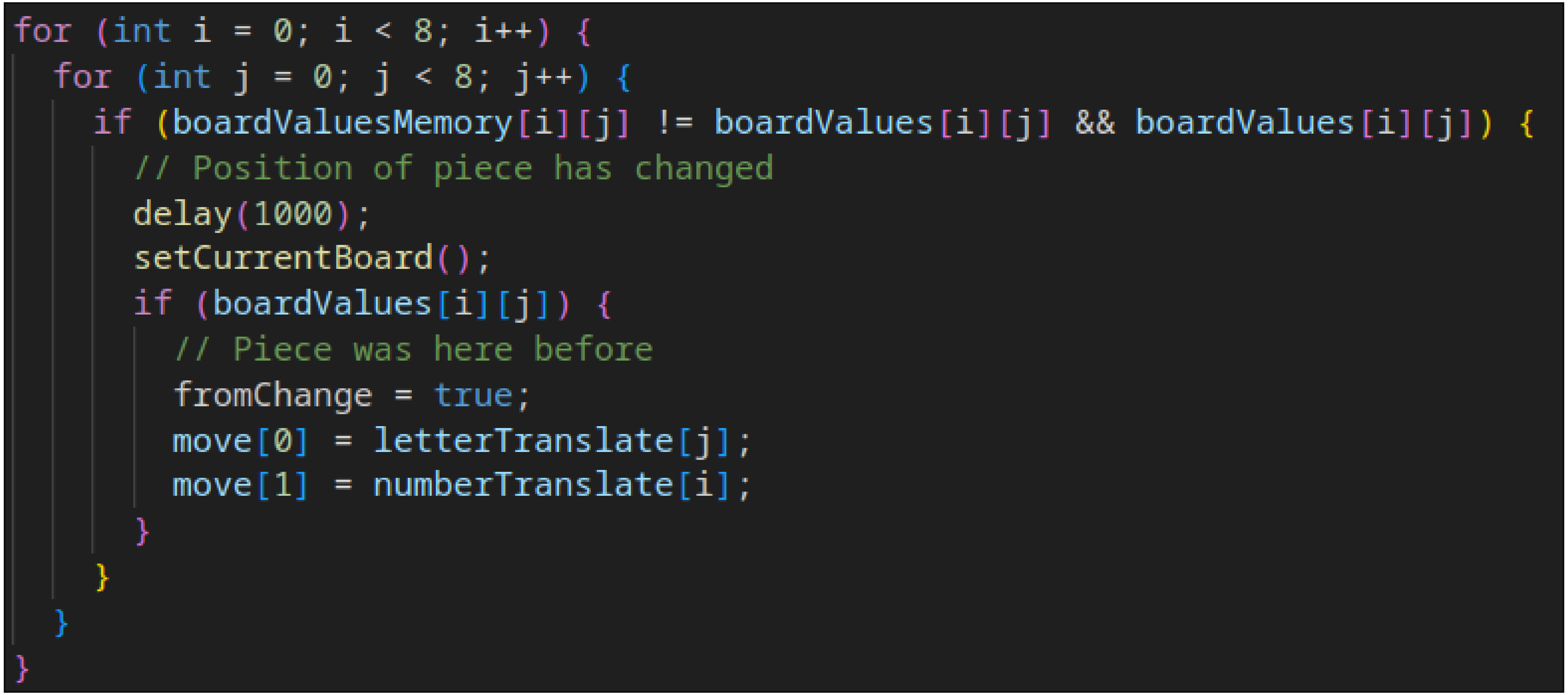


Průběh šachové hry



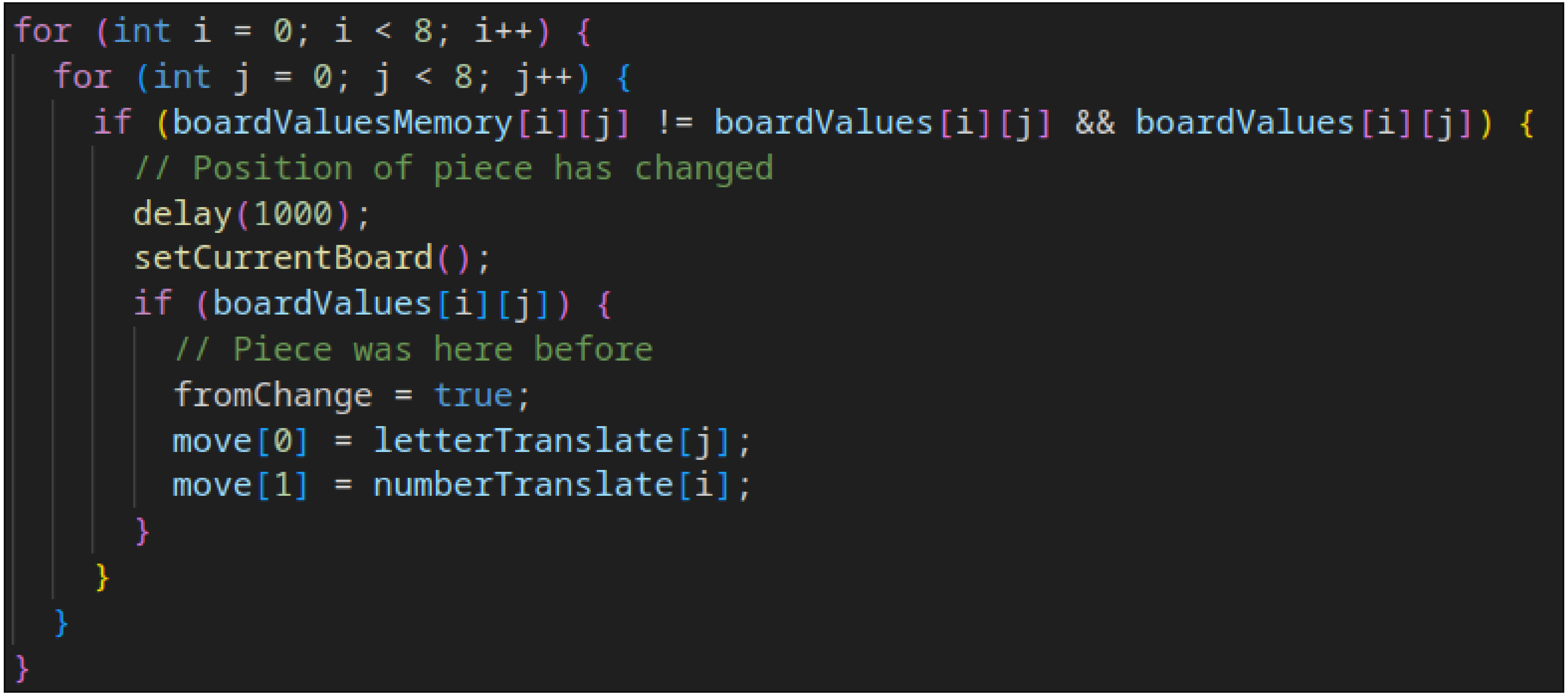
```
// User's turn
setCurrentBoard();
memcpy(boardValuesMemory, boardValues, sizeof(boardValuesMemory));
while (!move[0] || !move[1] || !move[2] || !move[3]) {
  detectBoardMovement();
}
```

Detekce pohybu figurek



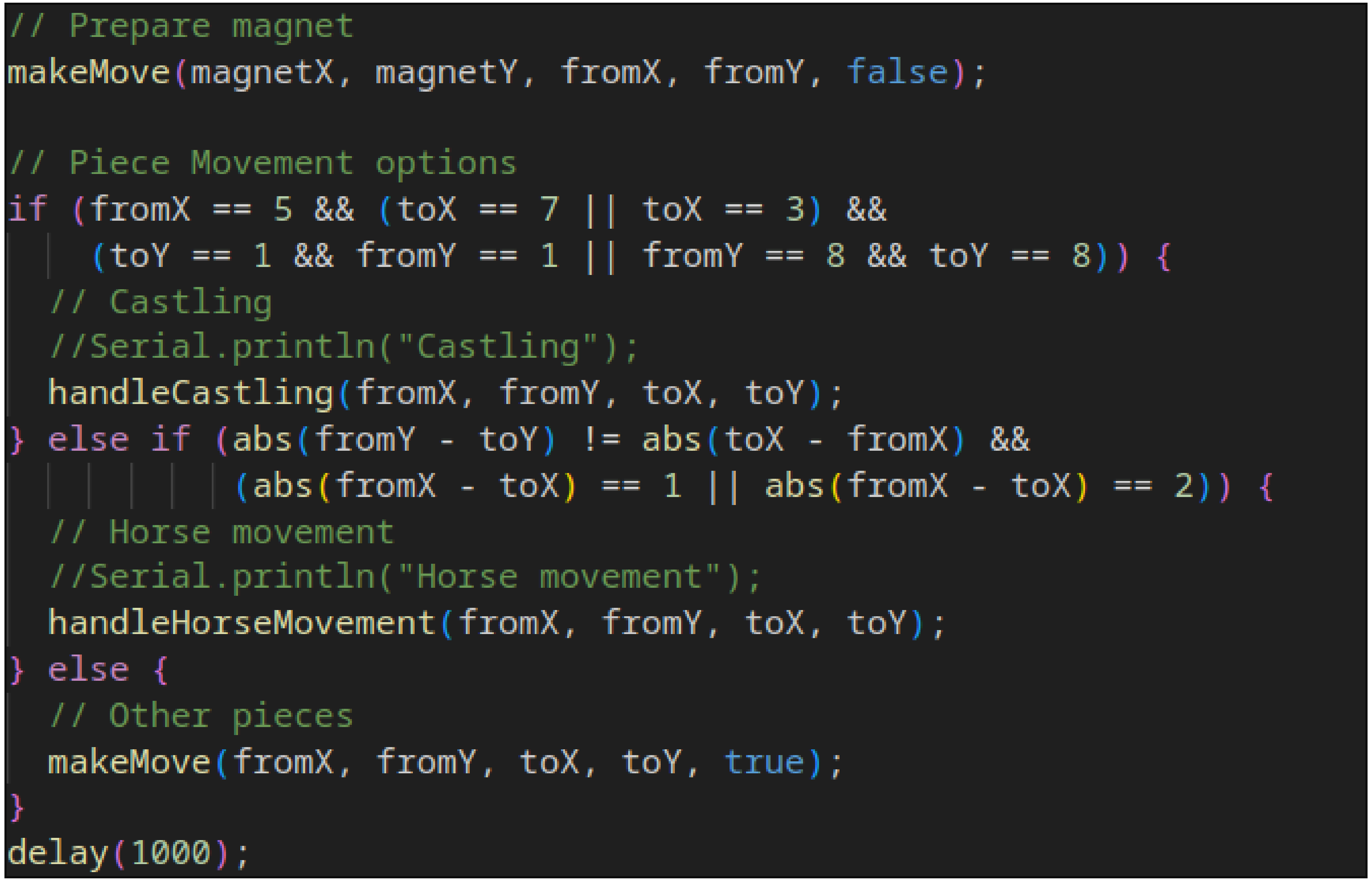
```
for (int i = 0; i < 8; i++) {
  for (int j = 0; j < 8; j++) {
    if (boardValuesMemory[i][j] != boardValues[i][j] && boardValues[i][j]) {
      // Position of piece has changed
      delay(1000);
      setCurrentBoard();
      if (boardValues[i][j]) {
        // Piece was here before
        fromChange = true;
        move[0] = letterTranslate[j];
        move[1] = numberTranslate[i];
      }
    }
  }
}
```

Detekce pohybu figurek



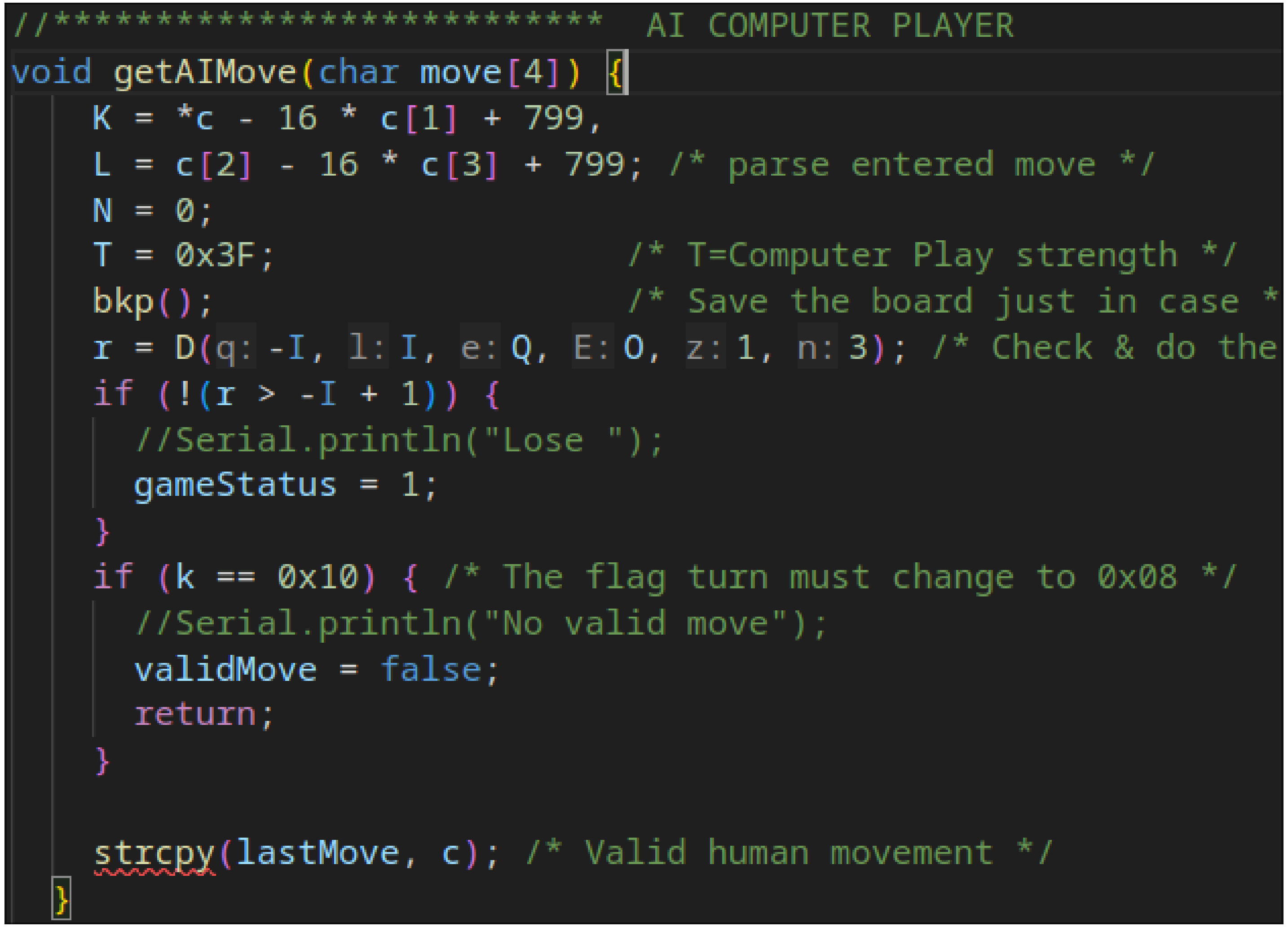
```
for (int i = 0; i < 8; i++) {
  for (int j = 0; j < 8; j++) {
    if (boardValuesMemory[i][j] != boardValues[i][j] && boardValues[i][j]) {
      // Position of piece has changed
      delay(1000);
      setCurrentBoard();
      if (boardValues[i][j]) {
        // Piece was here before
        fromChange = true;
        move[0] = letterTranslate[j];
        move[1] = numberTranslate[i];
      }
    }
  }
}
```

Pohyb figurek

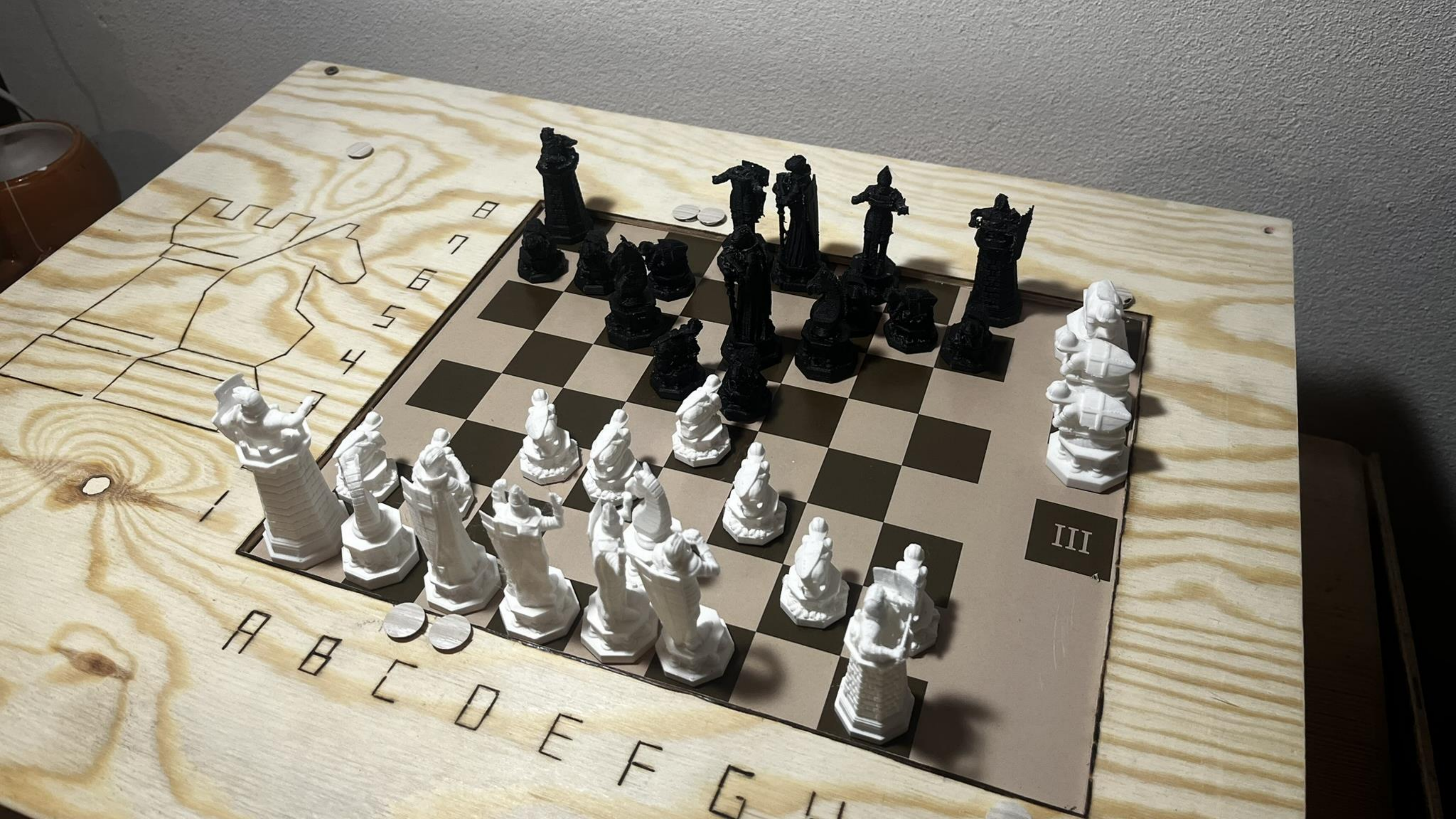


```
// Prepare magnet
makeMove(magnetX, magnetY, fromX, fromY, false);

// Piece Movement options
if (fromX == 5 && (toX == 7 || toX == 3) &&
    (toY == 1 && fromY == 1 || fromY == 8 && toY == 8)) {
  // Castling
  //Serial.println("Castling");
  handleCastling(fromX, fromY, toX, toY);
} else if (abs(fromY - toY) != abs(toX - fromX) &&
           (abs(fromX - toX) == 1 || abs(fromX - toX) == 2)) {
  // Horse movement
  //Serial.println("Horse movement");
  handleHorseMovement(fromX, fromY, toX, toY);
} else {
  // Other pieces
  makeMove(fromX, fromY, toX, toY, true);
}
delay(1000);
```

Šachový oponent



```
//*************************** AI COMPUTER PLAYER
void getAIMove(char move[4]) {
  K = *c - 16 * c[1] + 799,
  L = c[2] - 16 * c[3] + 799; /* parse entered move */
  N = 0;
  T = 0x3F;                   /* T=Computer Play strength */
  bkp();                      /* Save the board just in case *
  r = D(q: -I, l: I, e: Q, E: O, z: 1, n: 3); /* Check & do the
  if (!(r > -I + 1)) {
   //Serial.println("Lose ");
   gameStatus = 1;
  }
  if (k == 0x10) { /* The flag turn must change to 0x08 */
   //Serial.println("No valid move");
   validMove = false;
   return;
  }

  strcpy(lastMove, c); /* Valid human movement */
 }
```


8
7
6
5
4
1
A
B
C
D
E
F
G
III

Děkuji za pozornost

Václav Zíka

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odborná činnost