

SMART GAME BOARD

by Bogdan Berg

PHYSICAL INTERFACE

At the bottom left corner of the board (as viewed by player 1), near cell $(7,0)$, is a button and a switch.

Button – press to restart the game

Switch – select between game of Checkers and Chess(**note**: currently switches between Checkers and Debug mode) then press the reset button to start a new game

HOW TO PLAY

STARTING A NEW GAME

New game will begin automatically upon powering on the board.

If the game previously in progress has ended (winning player is indicated by an animation), the game enters a special mode – “quick restart”. This mode will mark all pieces present on the board as red, requiring only 2 pieces to be placed in 2 opposite corners. Once players organize the board as instructed, another animation will indicate that new game can now begin, and the starting positions will be presented to the users, with cells color coded for each player.

Alternatively, the game can be restarted at any time by pressing the *Reset button*.

INITIALIZATION

Once the game is initialized, a number of cells on the board will be highlighted with 3 colors:

Green – indicates cells for player 1

Yellow – indicates cells for player 2

Red – indicates cells that should be left empty, but contain unexpected game pieces

Fill in the cells marked with green and yellow with pieces for corresponding player. When all the expected pieces are in place, and there are no unnecessary pieces left on the board, the game will start (this is indicated by a short animation).

SMART GAME BOARD

by Bogdan Berg

MAKING A TURN

A player's turn is indicated by few quick blinks on the board, on the side where current player starts from.

STARTING THE TURN

Once it's your turn, lift one of your pieces to see the possible moves.

Now, depending on the game state, the cell from which game piece has been lifted will turn:

- **Purple**
Purple indicates a starting cell – this is where the piece has been moved from originally. You may now see some cells turning dark green.
Dark green cells indicate possible moves – you can place the piece on one of them to complete the move. If the selected game type allows it, you can place the piece back on **purple** cell, to **cancel** this move and try another one.
If you don't see any cells turning dark green, there are no possible moves that this piece can take. Put it back on the originating cell and try another one.
- **Green** or **Yellow**
This piece should not be lifted – it may indicate that this is not your turn. Please put the piece back to its original position.
- **Blinking red** and then **Green** or **Yellow**
If the selected game mode has additional limitations as to which piece can make a move, this will be indicated by the cell blinking with red color. In case of Checkers, this means that a player attempted to make a move with a piece that cannot attack, while there is another piece with possible offensive move – in which case attacks are required.

ENDING THE TURN

Once player puts the piece on a destination cell, and the move ends, there are few things that may take place:

- If your move resulted in beating an enemy piece, it will be highlighted with **red**, indicating lost checker that should be removed from the board. If your move resulted in attacking the opposite player, and from the new position you can make another attacking move, your turn doesn't end.
- If the move resulted in your piece ending move on the exactly opposite end of the board, the piece will now become a **King**. This is indicated by an animation (blinking cell, in the color of the player). Put another checker piece on top of it (stacked), to make it easy to differentiate from regular pieces.

CHECKERS - GAME RULES

CHECKERS

Each player starts with 12 pieces, positioned across 3 rows, only on dark cells. At the beginning of a game, all pieces are same.

Each player can make a move at a forward facing (relative to this player) diagonal by 1 square. If there's an enemy piece on an adjacent square, the player can make an offensive move: jump through the enemy, beating that piece. The offensive move can take place on each of the 4 diagonals (including move backwards).

Upon reaching the furthest row, a piece is being transformed into **King**. King can move diagonally any distance, in any direction, as long as it's meeting those conditions: can jump only through a single enemy piece in a turn, can't jump through piece of its own color, has to land on an empty cell. There's no limit to number of Kings a player can have.

Game ends when one of the players runs out of pieces and loses.

Game settings:

- HAS TO ATTACK IF POSSIBLE - If a player can make offensive move (and beat enemy piece), he/she is required to do so,
- CAN CANCEL A MOVE - Player can place the piece back on the starting cell, cancel the move, and try another one (without losing the turn)
- CAN CANCEL CONTINUOUS MOVE - If a player just made an offensive move, he/she has the ability to continue and make another move. However, at this point the player has the ability to cancel the move (by placing the piece back on the starting purple cell) and forfeit their turn.