

Assignment 2

Construct a digital block for an electronic game of handball in which a glowing LED represents the moving ball. At any point of time, at most one ball will be glowing. Simulate the ball by a moving light that is shifted left or right. Rate at which the light moves can be controlled.

Use a start switch to start the game by placing the ball (glowing LED) at the extreme right. The player (only a single player can play this game) must press a pushbutton switch to start the ball moving to the left. The single light ball returns to the player (who is at the rightmost position) by reversing the direction of shift of the moving light. When the light is again at the rightmost position, the player must press the pushbutton switch again to change the direction of the shift. If the player presses the pushbutton switch too soon or too late, the ball disappears and the light goes off. One can restart the game by turning the start switch on and then off. Keep the start switch open when the game is being played.

Hint: use four-bit bidirectional shift registers with parallel load.