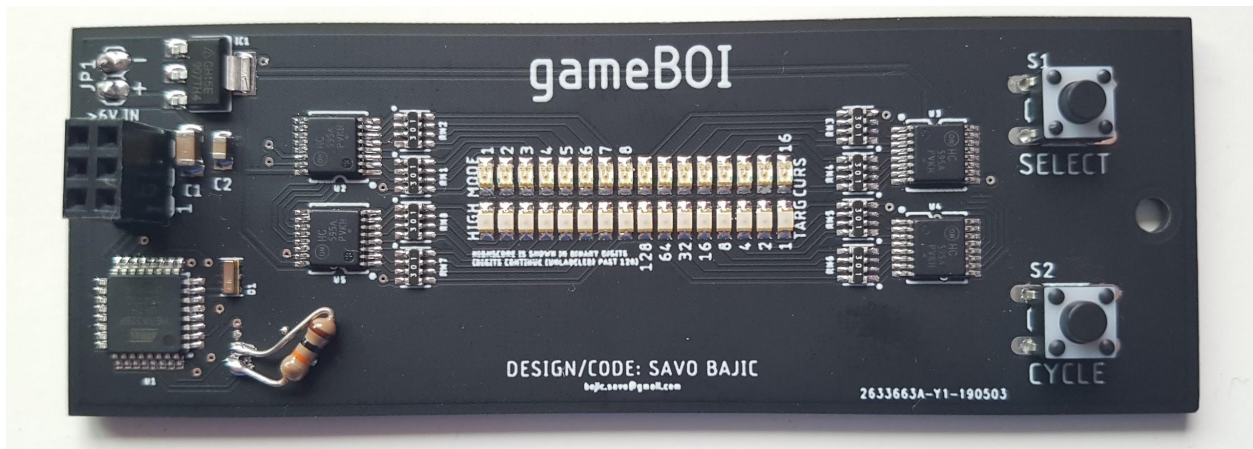


gameBOI Manual

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General gameBOI overview

Here are some sections outlining the general principles of the gameBOI.

Hardware

The gameBOI's hardware is split into sections on the circuit board. Starting with power input in the top left, chances are your gameBOI came with a 9V battery connector pre-soldered there. Any voltage between 6V and 50V can be applied here.

In the middle of the board are two rows of 16 LEDs each which act as the 'display' for the unit. The top row is made of green LEDs and is labelled 'CURS' and 'MODE' at each end. This row is used to display the cursor in games or select game modes in the main menu. The bottom row is made of red LEDs and is labelled 'TARG' and 'HIGH' at each end. This row is used to show targets in games and display the highscore in binary format when scrolling through game modes in the main menu.

On the right of the gameBOI are the buttons which are used as the only inputs into the system. The top button is labelled 'SELECT' and is used to select/start a game mode in the main menu, or interact in a game. The bottom one is labelled 'CYCLE' and is used to cycle through the game modes in the main menu, it is not used in any games at this point.

Operation

When the gameBOI is powered on it will start in the main menu. Here the user can use the 'CYCLE' button to cycle through the game modes as indicated in the 'MODE' LED row (the LEDs are numbered along the top), as they cycle the bottom row will display the current high score for that mode.

Once the desired mode is reached, the user is to press the 'SELECT' button, this will begin the game. The user will then play until they lose, at which point they will be shown their score in the 'CURS'/'MODE' row of LEDs and the high score beneath it in the 'HIGH'/'TARG' row for comparison. If the user achieved a new highscore the screen will flash and update it. After this the gameBOI will return to the main menu.

Special Operations

In the main menu there are two other special functions that can be done: resetting the highscores and entering sleep mode.

To reset the highscores (set them all to 0) hold both buttons for over 15 seconds when in the main menu, then release them.

Sleep mode is used to conserve power when the device is not in use without disconnecting power. This will turn off all LEDs and put the microcontroller into a low-power state to minimize power draw. To enter 'sleep' mode hold the 'CYCLE' button in the main menu for between 5 and 10 seconds before releasing. To return to normal operation, press the 'CYCLE' button again.

Gameplay Mechanics

Although all game modes vary by some degree there are some common mechanics and terms that are shared between them. For example all games make use a cursor that moves along the top ('CURS"/MODE') line of LEDs that is used to aim at targets in the row below, and the user interacts using the 'SELECT' button.

Glossary of terms:

Hit - Pressing 'SELECT' when the cursor is over a target. Pressing 'SELECT' with the LEDs as they are below would be a 'hit'.

Miss - Pressing 'SELECT' when the cursor is not over a target. Pressing 'SELECT' with the cursor in any of the positions shown below would be a 'miss'.

Pass - The cursor going over a target and not pressing 'SELECT' before it moved on. If the cursor is moving from left to right, once the cursor reaches the point below without 'SELECT' being pressed, it is a 'pass'.

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Game Modes

The game list is as follows, they are detailed in their sections:

- 1 - Escape
- 2 - Pop can knock off
- 3 - Skip rope
- 4 - Stacker
- 5 - Survival
- 6 - Swing
- 7 - Whack a mole

Escape (1)

The objective is to find holes in the wall to jump through. The cursor scans and you must select any of the openings. If all openings are passed in a round, gameover.

The cursor will speed up and there will be fewer openings as time progresses.

Pop Can Knockoff (2)

Cursor scans and the goal is to hit targets. Several targets appear at once and they must all be hit before the next round. There is no time limit or penalty for passing targets, but missing will end the game.

Each round will have the same amount of targets, however the cursor speed will gradually increase. There is a point bonus for each complete round finished.

Skip rope (3)

The user has a constant target at the bottom and the cursor scrolls left to right. The goal is to hit the target to continue and the cursor speeds up every round. This continues until they miss the target or pass it.

Stacker (4)

Classic stacking game. A block is the foundation and another block scrolls above it. The user tries to place the moving block on top of the other minimizing overhang, any overhang is lost and the newly placed block becomes the new base. The new block will be of the same width as the base.

The user is to try and climb as high as possible, before they place a block that entirely misses and ends the game.

Survival (5)

Cursor scans edge to edge, the goal is to keep knocking down targets as they pop up and prevent more than a certain amount being present being onscreen at once. There is no time limit nor penalty for misses. However, the cursor will speed up over time to compensate the faster spawn rate of targets

Swing (6)

The objective of this game is to hit every target as they appear on the bottom row (only one target will be present at any given moment). The cursor will bounce side to side gaining speed with every hit and randomly changing direction after hits.

Should the user pass or miss a target, the game ends.

Whack a Mole (7)

The user's cursor bounces side to side and they attempt to hit the multiple targets in the bottom row. The goal is to score as many points in the time allowed. Hits add points, and although there is no penalty for passing a target, points are deducted when a shoot is fired without a target.

The cursor speed is constant for the duration of the game.