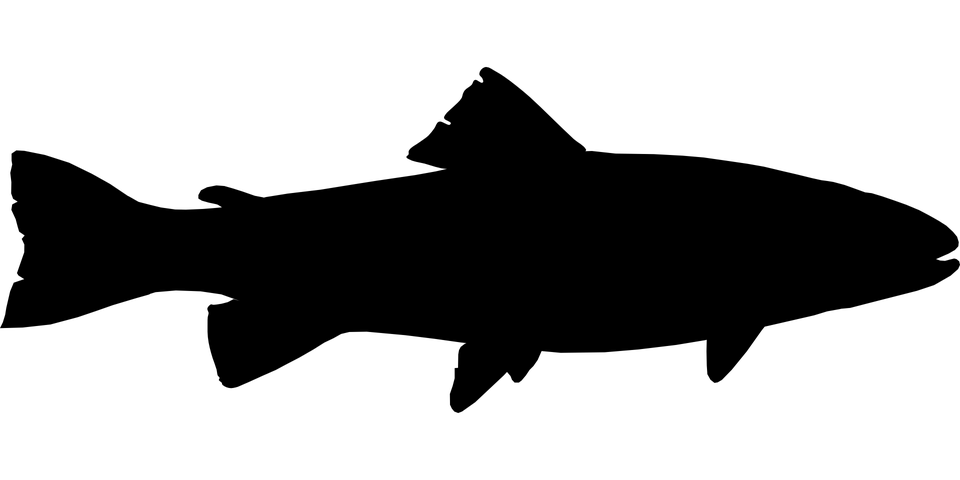
“Gone Fish’in” Game on FPGA - User Manual

**Overview:**

This FPGA based single-player game is designed to simulate a fishing experience, in which players must catch as many fish as possible in a row before they fail. The player has two buttons during gameplay, REEL and CAST. A player must first cast their fishing rod to start the game by pressing the CAST button. A timer will start ticking down, in which the player must wait until something is on their hook. Only two things can be caught, a fish or a boot. Successfully catching a fish will increase your score, while attempting to even catch a boot will decrease your score. When a fish is lost, the current game is over until the user casts their rod back into the water. The goal of the game is to get the highest score possible.

When a fish is on the hook, a solid LED bar will appear, with two blinking LED’s surrounding it and a singular blinking LED in the middle. This system simulates the fishing process. The singular blinking LED represents your reel control. By default, this LED will move to the left, representing the fish getting away. If your reel control moves past the blinking-left boundary, the fish is lost and the game is over. By pressing the REEL button, this will move your reel control toward the right, representing reeling the fish closer. However, moving past the blinking-right boundary will snap the line, also losing the fish for aggressive reeling.

Hence, there is a “sweet-zone” to be in, which is the solid LED bar of green and red LED’s. Having your reel control in this zone will decrement a timer; this timer hitting zero catches the fish and increases your score. The difficulty of this task is determined by an initial difficulty setting, and dynamically increases as your score gets higher. Timing is also augmented with an LFSR-based RNG.



**Before Play:**

This game has account information stored within FPGA ROM, meaning the user must enter in their userID and password to access playing the game. Each userID is 4-hexadecimal digits, with a corresponding 5-digit password. The following userID and passwords are registered in ROM:

(Fazal) UserID: 1127 Password: 7211A

(Jon) UserID: 2849 Password: 9482B

(George) UserID: 4755 Password: 5574C

(Nick) UserID: 2389 Password: 9832D

(Nathan) UserID: 5198 Password: 8915E

(Guest) UserID: 3476 Password: 6743F

A player must start by entering in a valid UserID, then the corresponding password sequentially by setting the appropriate hexadecimal number with the Access Switches and confirming the selection with the Access Button. The current digit you must enter is kept track of on the Info Display; for example, this will display “U2” when you must enter the 2nd digit in the userID, or “P4” for the 4th digit in the password. If done correctly, the Access Granted LED will turn green, signifying that the user is logged-in and can start to play the game.

After authentication, player highscores for the current session for each userID are displayed on the Info/Score Display, which can be cycled through using the Access Button. The difficulty for the game is set by using the Difficulty Switches. The difficulty is represented from 0 to 7, where 7 is the hardest difficulty. Start the game by pressing the CAST button. Good Luck!

