# Homework 2
Finite State Machine

The code is verified using the Inginious platform. The grading system (3 free attempts, then a 10% penalty) is similar to what you will have in the midterm evaluation.

In this homework, your task is to implement the actions of a video game character on the Nintendo Switch using a Finite State Machine (FSM). The FSM diagram is provided below. Please review it carefully and implement the design in SystemVerilog, following these guidelines:

- Please, encode the **output actions** as: Stand [00], Jump [01], Double Jump [10] and Run [11].

- The buttons are encoded as follows :
    - B button: 001
    - Y button: 010
    - X button: 100

- Implement a **synchronous** reset.
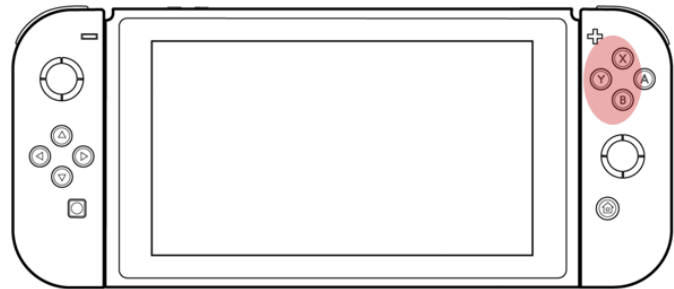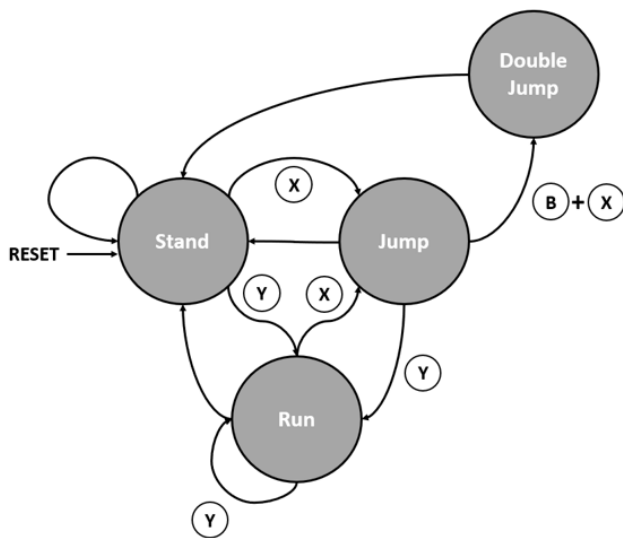
Before submitting to Inginious :

1. Test your implementation as you learned it in the lab, using a testbench.

2. Check that the name of your module in your .sv file matches the module description on Inginious. Submit your entire design **including the module definition** on Inginious to be graded.

3. You get **three attempts** before you **start losing 10% of the grade** for each new **failed attempts**.