Game *Star Wars*

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Description
This project is inspired by the Xbox360 game *Geometry Wars*. The object of Star Wars is to survive as long as possible and score as many points as possible by destroying an ever-increasing swarm of enemies. A player could control a ship that moves freely with an Xbox360 controller. To make the game more challenging, the game has the following enhancements:

- Some of the asteroids are turned into invading spaceships, which are also able to shoot bullets.
- Enemies have different shapes and are able to shoot either white bullets or black bullets.
- The player's spaceship is able to change its color to match with the color of the bullets coming from the enemies. Color-matched bullets will be taken as energy but mismatched bullets will bring damage to the player's spaceship.
- If the energy gauge is completely full, the ship is able to use the energy to throw out a bomb that destroys all the enemies in the screen. If the energy gauge is more than a half full, the ship is able to use the energy to turn into burst mode. In normal mode, the ship could only shot one bullet at a time. In burst mode, the ship could shoot 3 bullets at a time. In this mode, each killed enemy will give the player 2X points. The burst mode only lasts for 20 seconds.
- The player's spaceship will be powered up by taking the bonus bullet-packages that are randomly appeared on the screen. Different bullet-packages have different functionalities. They could provide extra points, extra life, or extra energy.
- A life status bar will be shown on the top of the screen and the player's goal is to get a score as high as possible in the available 3 lives. The player's spaceship will be destroyed and the player loses one life upon collision with the enemy.

The hardware implementation will be developed on the Altera SoCKit Board and we will utilize the Xbox 360 controller as the sensor to control the movement and direction of the player's spaceship instead of the keyboard and mouse. A two-player mode is considered as an optional feature if time is available.

Input & Output

Input module：
This module is responsible for the inputs that come from the Xbox 360 controller. After detection and interpreting, the generated signals are output to control the movements of spaceship such as going up, down, left, right, spinning or shooting bullets.

Output module：
The video module is 2D-effect VGA graphic displayed by RGB color.
The audio module is for background music, shooting sound and other effects.

Milestone

March 27th - Milestone I:

Set up the architecture of the game including both hardware and software.
Specify the modules for different functionalities.

April 10th - Milestone II:

Complete Algorithm needed using Verilog.
Develop basic modules for different functionalities.

April 24th - Milestone III:

Add sound effects and wrap up the interface.