CS 223 PROJECT PROPOSAL

ROCKY JOURNEY: AN LED MATRIX GAME

Çelik Köseoğlu 21400196

Berk Evren Abbasoğlu 21400812

Description: Set sail on an intense journey riding on your mighty cruise, the sky is blue, the birds are singing songs of joy, the ocean waveless. Until… Rocks challenging the might of your ship are along your path, causing every bit of trouble they can to prevent you the fun of a carefree journey. As the courageous captain you are, your friends and family along the cruise are looking up to you for a chance to return home, hopefully still in one piece. Guide your ship through the reckless waves of the unforgiving ocean, and try to survive the endless wreckage of spines of stones, and maybe, the dreams of those you care might be seen fulfilled.

The project will manipulate the LED Display Matrix of the beti board. Considering it a 8x8 board, the ship will be simulated as a constant LED light on the second column from the left side. Other LED lights of varying sizes will approach from the opposite end of the board, where three, two, or just one of them is unlit. Using the buttons of beti's keyboard matrix to move upwards or downwards along the column, the player will aim to go through these "holes" (unlit LED lights) as far as they can. The Seven Segment Display on the BASYS-2 board will be counting the number of holes you pass. After it reaches certain limits, the speed of these obstacles (LED lights) will increase, and they will keep increasing until a terminal speed is achieved.

The two buttons of beti's keyboard matrix are the only two inputs that are required to play the game. Other than that, there will be start and reset switches to set the game into int's initial sate.

The LED Display Matrix of the beti board outputs the current position of the ship and the holes, whereas the Seven Segment Display on the BASYS-2 board outputs the number of successful passes. The inputs manipulate the movement of the LED light representing the ship along the column it belongs to. Any movement through rows will not be possible. Figures are provided below for a clearer view of the game.
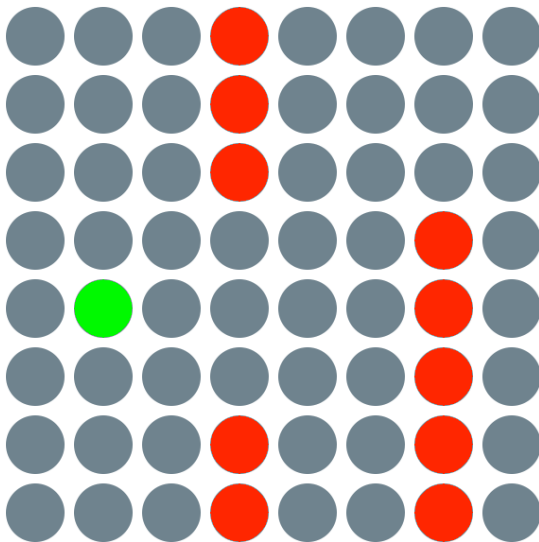

Figure 1:
red lines are the obstacles and the green
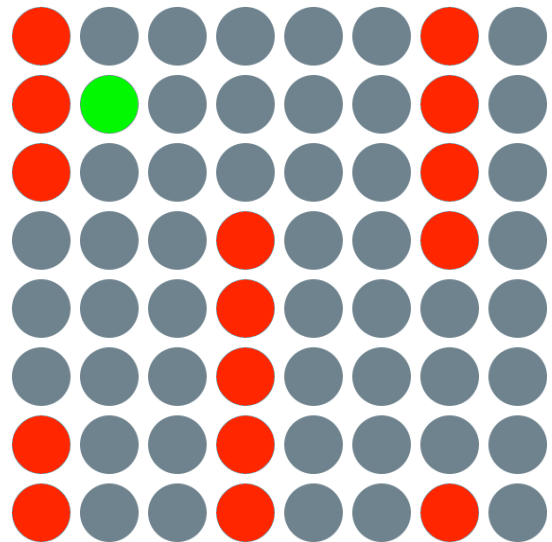point is your ship, you move up and down

Figure 2:
red lines are moving towards left while
new ones are being generated on the right

Figures 1 and 2 (above) provide a sample view of the running game. The green light is the ship, though in the actual game, both the obstacles and the ship will be coloured the same because of the LED Matrix's limitations. Here, it is shown green to help visualise the game further. The objective is to pass through the grey "holes" of the red lines.

Equipments: One beti board, one BASYS-2 FPGA board

Deliverables: We will deliver a fully working game played on the beti board, one like the famous application Flappy Bird (**http://flappybird.io**).