Bouncing Ball Adventure

* 1. Project Statement

At first, I couldn’t figure out how to combine Arduino and Processing together to make an interaction since if the Arduino is connected to the computer, then many characteristics like mobility will lose. Moreover, I think lots of interactions Arduino and Processing are the same and I don’t want to create something just to combine these two tools together.

Then I considered about the differences between the interaction that Arduino and Processing provided. Then I realize that Arduino can provide more physical interaction than the processing does, and processing can provide more visual interaction than Arduino do. For instance, on one hand, in Processing, the only physical interactions it can provide are just key pressed and mouse click, which is very boring and provide an unreal interaction compared to what Arduino provided. In addition, Processing lack sensors to feel the environment. On the other hand, in Arduino, it can provide thousands of different sensors to feel the environment and make the interaction more interesting using different components. Nevertheless，Arduino can’t provide things like images and animations that can give the audience visual shock. (The very famous project “wooden mirror”) Restricted by the reality physics rule, it can’t make things like a ball which can keep bouncing forever. However, the game with reality is more likely to be more interesting than the none-reality one. So, my idea comes here: to let the player play in the reality, while they see their movement in the screen, and this is an interaction that forms a loop. This fits in the concept that I came up with in my last research.

The proposal is a game and the inspiration come from the traditional bouncing ball example. I planned to divide the window into two parts: the left part is red, and the right part is blue and there is one ball of a different color bouncing in the space. There will be a block moving on the bottom of the window. Whoever managed to make the ball go to the other side will win.

Here comes an interesting problem: how can we control the block? I planned to use a distance sensor to help you control the block. I will set an area where you can put body in and the location of the block is decided by your position in the area. I think it will be an interesting game with sports element and it is more practical to use.

图片包含 屏幕截图

描述已自动生成

2.1 Project Plan Step1 Processing

As stated above, the project is designed for two players to compete with each other, so the first step is to design a game for one player. The first thing to do in this step is to make the ball bounce in the space and make sure when the ball reaches a certain position, the ball will disappear and looks like it has bounced in a new space. In this part, I can use the code from our class about bouncing ball. The second thing I need to do is to make a moveable board that can rotate and when the ball touches the board. I haven’t come up with how can I make the code, but I think I can do it with the help of IMA fellows.

2.2 Project Plan Step2 Arduino

Compared to the code problem in Processing, the issue in Arduino seems easier to solve. What I need is just to use my experience during the mid-term and use distance sensor to upload the data to Processing. Since my project is A to P, so the code in the Arduino Part is easier. To give the player a response on that he/she has on the area, I plan to install a Green LED. When the distance sensor’s value is not the distance to the other side, the LED will be lightened up.

2.3 Project Plan Step3 Combined effort

This part is to combine Arduino and Processing together, and moreover, double the work. The previous work is all about one-player issue, then in this step, I will take the two-player game into consideration, which means I need to reduplicate the work if the previous steps doesn’t go wrong…

3.

First, my idea comes from traditional bouncing ball game but different from them in terms of the way of operating(the game is different, too!) And I was also inspired by the recent popular Nintendo’s Game: “Ring Fit Adventure”. This game used a ring to make the player interact and rank different games. I also want to make a similar game that combine computer world and reality together.

Second, I also thought about user interface. Since the other side and the ball are painted the same color and there is a hole in the “wall” of the two sides, it would be easy to know what the goal of the game is without much description. The idea of User Interface is in line with what I researched in the preparation about “Drone Collision Avoid System”(<https://www.youtube.com/watch?v=L3l-zJafOncNo.4>).

The meaning of my game is “achieving perfection”. The game wasn’t designed perfect when you play it, and the final goal of the game is to achieve perfection. This is the meaning I injected into the game. I also mentioned it in my group preparation.