Gizmoball: Triggering System

CS308   Group MW1

The triggering system is what will connect trigger initiators to their respective actions. Both gizmo's and key presses will have the ability to produce triggers and therefore subsequent actions. Within our system. The gizmo's which will have triggers and actions will be bumpers, flippers, absorbers and outer walls.

Gizmo's can be triggered by key presses and also by being attached to other gizmo's. The actions which are taken following an object being triggered will determine how the game flows. A gizmo will produce a trigger when it is hit by the ball at any time and will have a subsequent action i.e. a ball hits a flipper and the flipper moves.

Gizmo's can be connected to other gizmo's through the use of the connect function and the trigger that a gizmo produces can be connected to the actions of other gizmos. A gizmo's action can be activated by multiple gizmo's it is connected to and the most common triggers for a gizmo will be when it is hit by a ball. An example of where the triggers and actions of two separate gizmo's are connected could be seen by a user connecting a circular bumper and a flipper, where a bumpers trigger would be activated every time it is hit by a ball and the flippers action, which is rotating, would occur.

Key presses will be another form of trigger and corresponding actions whereby when a key is pressed, the desired action occurs. When the keyboard key is actually pressed or released, there will be a unique set of actions attached to that key which will be triggered. For example, the 'Q' and 'W' keys on the keyboard could be attached to the left and right flippers respectively. When the Q key is pressed, the left flipper would rotate 90 degrees and when the key is released, the flipper would return to its starting position on the grid.

Our system will allow a key to be pressed multiple times however the action of the key will not be performed until the trigger has returned back to its original position i.e. if a user pressed a key for the left flipper while the flipper was already in motion, the trigger would be ignored until the flipper was not in motion and had returned to it's original position.

Bumpers

Square Bumper:
Trigger – produced when hit by the ball
Action – None

Circular Bumper:
Trigger – produced when hit by the ball
Action – None

Triangular Bumper:
Trigger – produced when hit by the ball
Action – None

While there is no action for a bumper, the result of a ball hitting a bumper will simply be that ball bouncing back off the bumper into the grid.

Flippers

Left Flipper:
Trigger: Produced when hit by the ball or a key press
Action: Rotate 90 degrees counter clockwise from position on the grid

Right Flipper:
Trigger: Produced when hit by the ball or a key press
Action: Rotate 90 degrees clockwise from position on the grid

A flipper generates a trigger whenever it is hit by a ball or the unique key is pressed on the keyboard and can be triggered multiple times. When a flippers action is triggered multiple times, it moves 90 degrees from its original position for the first action, then when triggered a second time moves 90 degrees in the opposite direction to its first action taking the flipper back to the position it started in on the grid.

The action of the flipper can be triggered while the flipper is already in motion. Our system will implement a triggering queue, holding one trigger in the queue while the flipper is in a forward motion and have no queue for the backward motion.This queue will handle potentially error-prone quickly repeated keypresses by having one keypress produce two triggers which will cause the flipper to flip when triggered and return to its original position within one motion.

Absorber

Absorber:
Trigger: Produced when hit by the ball
Action: Shoots the ball vertically to the top of the grid

When a ball hits an absorber, the ball remains stationary for 0.25 seconds before the action of shooting the ball vertically begins. While the absorber at the bottom of the grid may look like one long rectangular absorber, it is multiple gizmos which are connected in alignment. If there are multiple balls in the grid and a ball is waiting to be shot out of an absorber when a second ball hits the absorber, then no action is taken by the second ball when it receives the trigger.

Outer Walls

Outer Walls
Trigger: Produced when hit by the ball

Action: None

The walls surround the outside of the grid cannot be moved, rotated or deleted. The walls form a square to set the boundaries in which the game will be played. When the ball hits the walls, it will simply bounce off back into the grid. Our system will not support the user to connect a trigger produced by the outer walls with any gizmos.