TEMASEK POLYTECHNIC
SCHOOL OF INFORMATICS & IT
DIPLOMA IN GAME DESIGN & DEVELOPMENT
AY2021/2022 OCTOBER SEMESTER (LEVEL 2)

GMAPS - PROJECT - 40%

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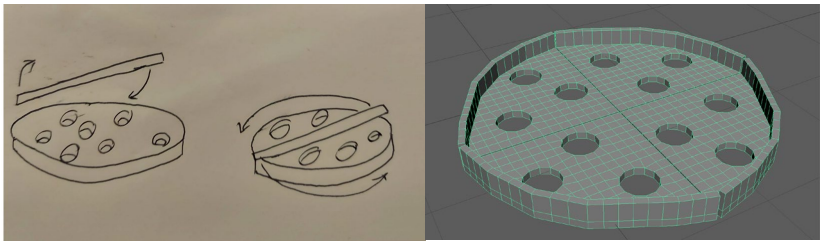
Class	**P02**

YouTube URL	https://youtu.be/15DkfANe8UU

Non-Interactive Puzzle Pieces

1st Piece

Random Holes



- This made from a cube with 15 divisions per side, holes are then added. The paddle is made to rotate the ball around.

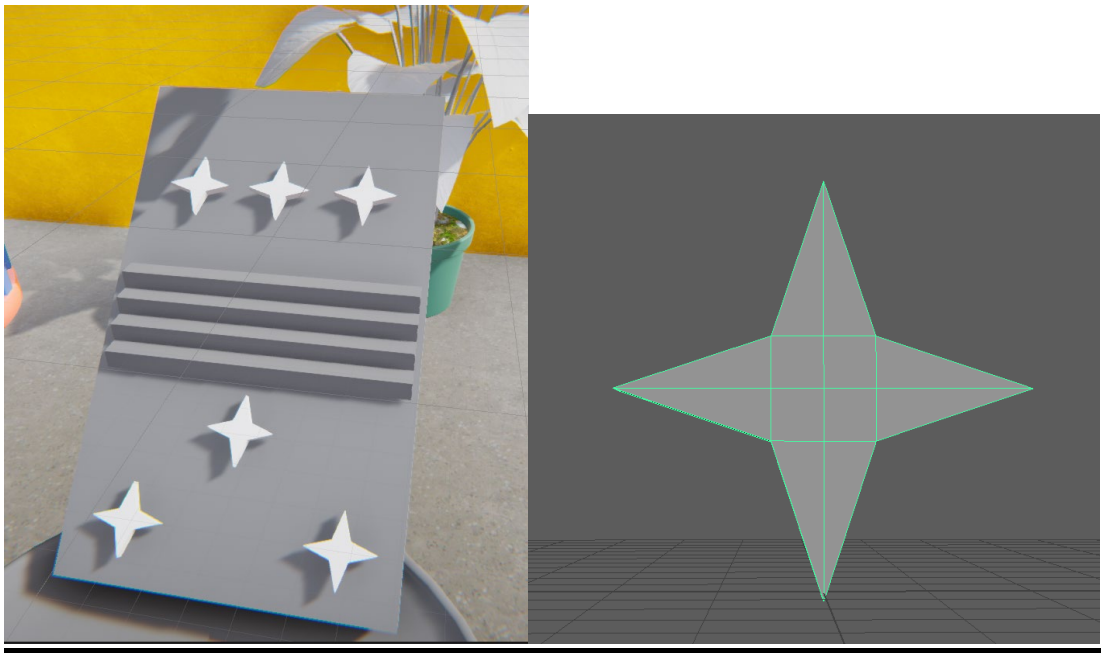
- The paddle uses a hinge joint and a script to rotate it.

- This is part is used to randomize the marble before its drops and brings a variety in the puzzle.

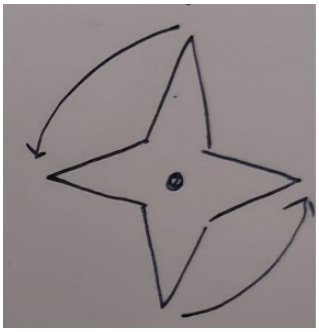
```
Unity Script (1 asset reference) | 0 references
public class Spin : MonoBehaviour
{
    private float rotateSpeed = 200f;

    // Start is called before the first frame update
    Unity Message | 0 references
    void Start()
    {

    }

    // Update is called once per frame
    Unity Message | 0 references
    void FixedUpdate()
    {
        transform.Rotate(Vector3.up, -rotateSpeed * Time.deltaTime);
    }
}
```

2nd Piece

Washing Board

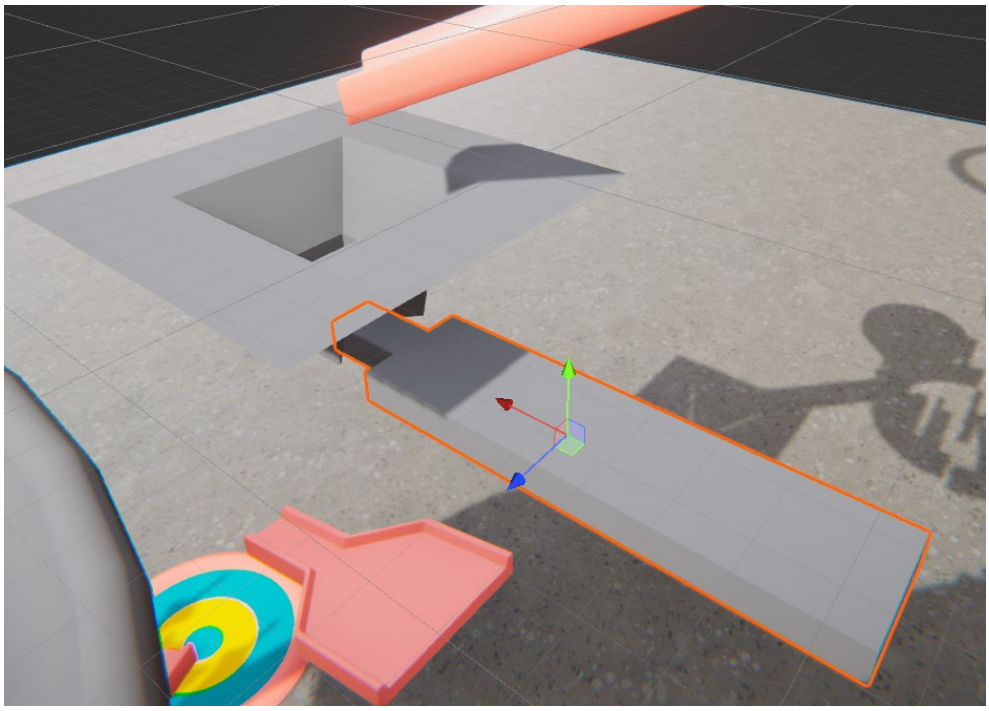


- The washing board is made of a rectangular shape and has 6 stars on it, as having a prism pattern to look like a washing board. The stars are used as rollers and rotates if the marble crosses it.
- The star uses a hinge joint around the centre of the star.

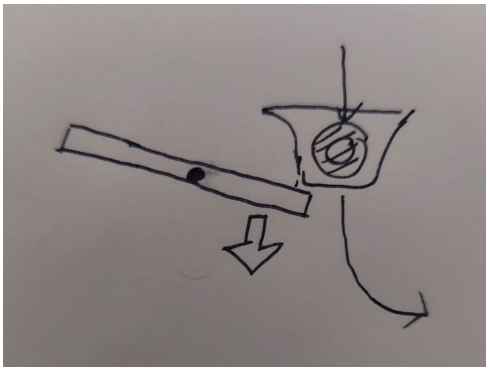


3rd Piece

Improvised See Saw



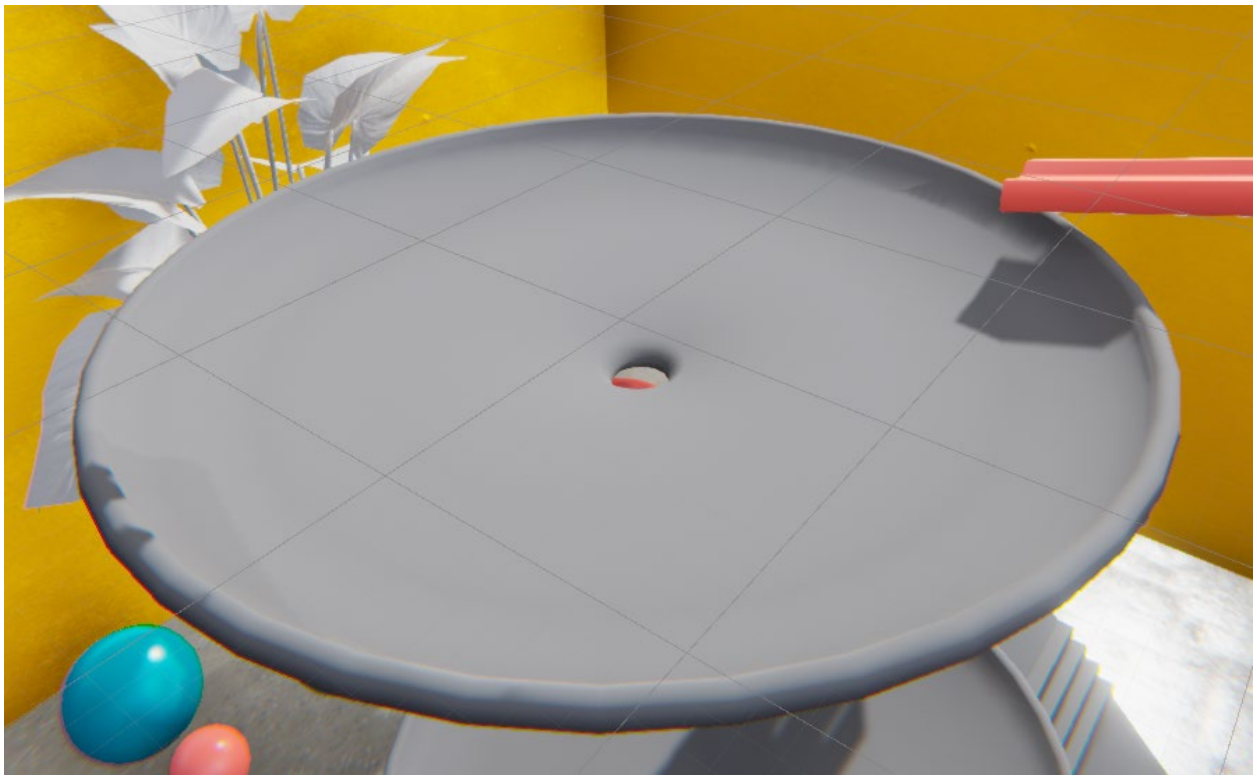
- The see saw is made with a plank when the marble falls on one side of the plank it will then drop the marble downwards.



- The see saw is made with a hinge joint and is push downwards when the marble is dropped.

4th Piece

Wishing Well Spiral

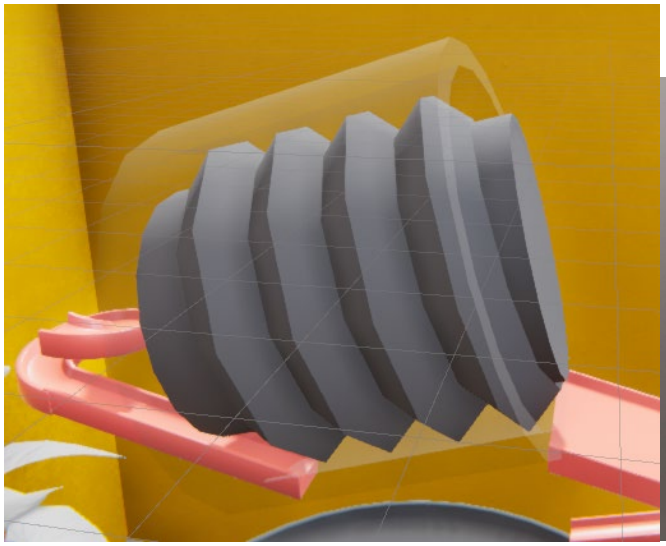


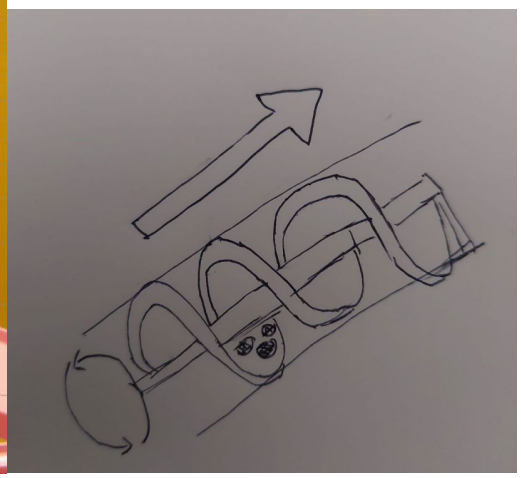
- The Wishing Well spiral is based on the “Coin Wishing Well” that uses the momentum of a moving object and cause it to spiral down.
- This part is to make the marble to generate momentum and can be make the marble move slightly faster.

Interactive Puzzle Pieces

Archimedes Screw

1st Piece





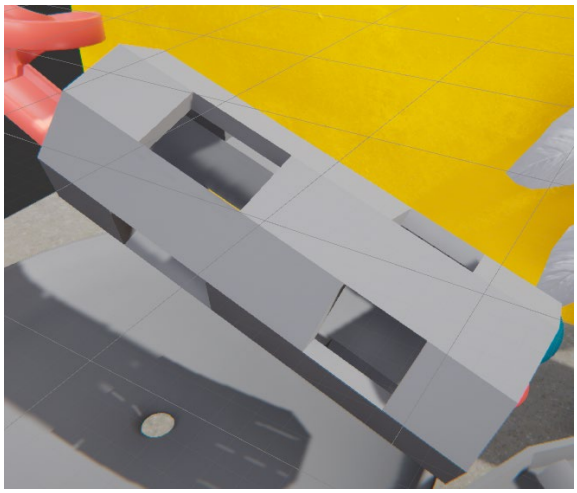
- The Archimedes screw is used to provide an interesting physics idea in the game. It is made with a helix around a cylinder and has a case.

```
Unity Script (3 asset references) | 0 references
public class Rotator : MonoBehaviour
{
    [SerializeField] private Vector3 _rotation;
    [SerializeField] private float _speed;

    // Update is called once per frame
    Unity Message | 0 references
    void Update()
    {
        if(Input.GetKey(KeyCode.Space)) transform.Rotate(_rotation * _speed * Time.deltaTime);

    }
}
```

- A rotation script is used to simulate turning it the helix. Using Space, the helix will be rotated on its y axis and slowly pushes the marble up the part itself.

2nd Piece

Rolling Pipe

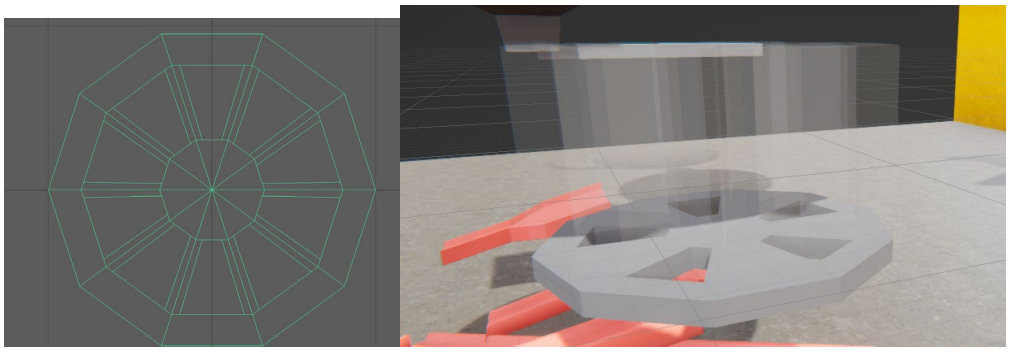


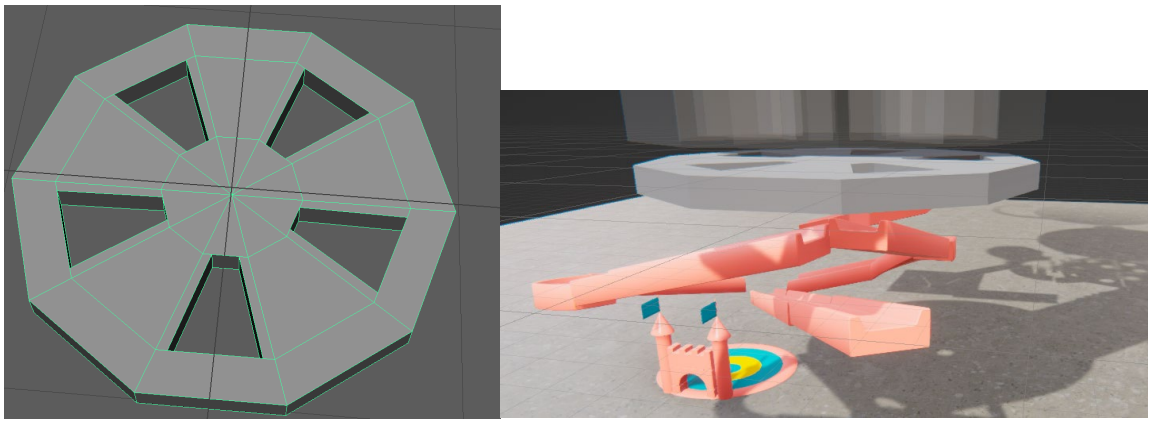
- The rolling pipe is used to divide two paths, if the player makes it through it goes to the random holes part, if the player drops before finishing it will go to the see saw.
- The rolling pipe is made of a cylinder and holes are cut out so that the marble can fall through.
- The pipe uses a rotation script that rotates it on its y axis.

```
Unity Script (3 asset references) | 0 references
public class Rotator : MonoBehaviour
{
    [SerializeField] private Vector3 _rotation;
    [SerializeField] private float _speed;

    // Update is called once per frame
    Unity Message | 0 references
    void Update()
    {
        if(Input.GetKey(KeyCode.Space)) transform.Rotate(_rotation * _speed * Time.deltaTime);

    }
}
```

3rd Piece

Merry Go Round





- The Merry Go Round is made of two parts
- The top part is a transparent wheel and bottom a wheel only some holes open.
- A script is attached to the top half to rotate it on its y axis.

```
Unity Script (3 asset references) | 0 references
public class Rotator : MonoBehaviour
{
    [SerializeField] private Vector3 _rotation;
    [SerializeField] private float _speed;

    // Update is called once per frame
    Unity Message | 0 references
    void Update()
    {
        if(Input.GetKey(KeyCode.Space)) transform.Rotate(_rotation * _speed * Time.deltaTime);

    }
}
```

- There are only 3 holes that will connect to a ramp, this makes the play time when to turn the wheel and to win.