

The USS Revaz

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Abstract

The USS Revaz is an action-packed, exciting multiplayer game that allows players to roam around the undiscovered expanse of space. The crew's goal is to find certain resources throughout the universe to help everyone escape from the giant extraterrestrial worm chasing them.

Goals:

- Build a better understanding of and learn how to implement wireless technologies
- Achieve an engaging gaming experience uniting the simple fun of arcade games with a social multiplayer experience

Pre-Production

Should our players be connected under WLAN or Bluetooth?

We thought about what sort of wireless technology we wanted to implement our game under. In order to come to the conclusion of using WLAN, we spent some time reviewing our lab material to see what was the best choice.

About Unity

Unity is a cross-platform gaming engine that allows the development of 3D and 2D video games.

Reasons For Using Unity:

- User-friendly UI, allowing drag and drop functionality
- Scripting language is C#
- Provides multiplatform support
- Many tutorials on how to achieve multiplayer gameplay using WLAN

Network Manager

The Network Manager is what controls the main components of any multiplayer game on Unity:

- Spawn Management
- Scene Management
- Debugger
- Matchmaking
- Customization

Network Manager

The Network Manager also provides a way to create a unique identity for each player in the game that is spawned

This allowed us to use properties such as:

- **hasAuthority**
 - Returns true if object is the authoritative version
- **isLocalPlayer**
 - Returns true if object is the one that represents the player on the local machine
 - This helped us when troubleshooting our controls
- **DontDestroyOnLoad**
 - Doesn't allow for the object to be destroyed when a new scene loads

Lobby Screen

Welcome To The USS Revaz

Status: Offline Host: None

MATCHMAKER

CREATE A GAME

CREATE

FIND A GAME

LIST SERVERS

MANUAL CONNECTION

PLAY AND HOST

OR

DEDICATED SERVER

JOIN A GAME

JOIN

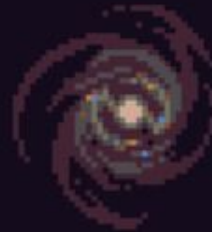
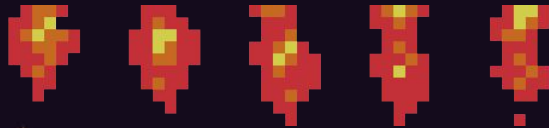
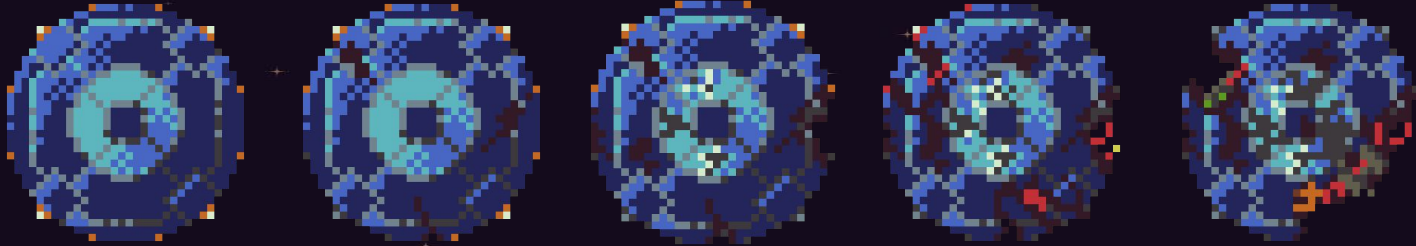
Code Snippet (Collecting Resources)

```
public string tag;  
public GameObject[] dots;  
private int count = 0;  
  
void OnCollisionEnter2D(Collision2D object){  
    if (object.transform.tag == tag) {  
        Destroy (thing.gameObject);  
        if (count < 5) {  
            dots [count].GetComponent<SpriteRenderer> ().color = new Color32( 0xD1, 0xCD, 0x4C, 0xFF );  
            count++;  
            if (count == 5)  
                manager.won += 1;  
        }  
    }  
}
```


Code Snippet (Asteroid Life)

```
float minDist;  
GameObject[] ships;  
  
IEnumerator Check(){  
    while (true) {  
        minDist = 15;  
        foreach (GameObject ship in GameObject.FindGameObjectsWithTag("Ship")) {  
            float thisDist = (ship.transform.position - transform.position).magnitude;  
            if (thisDist < minDist)  
                minDist = thisDist;  
        }  
        if (minDist >= 15)  
            Destroy (gameObject);  
        yield return new WaitForSeconds (3);  
    }  
}
```

Artistic Theme



- Retro pixel art style trickier than it looks
- Seeks to both look good and be understood...
- While using just 16 colors!

Artistic Theme (cont.)



Objective

- When the game begins each player has their ship spawned in a randomly generated galaxy, along with the giant celestial worm, Za'veer, Devourer of Worlds. As soon as everything is spawned, Za'veer will begin to chase the nearest the nearest ship.
- While avoiding Za'veer, each player has the mission of collecting five of their unique items. Once all players collect all necessary resources, they can initiate warp drive and win the game.
- However, if the Za'veer is able to sting a player, their ship will get knocked away and begin to show signs of wear. After being hit five times, the player's ship will be totally destroyed and the mission is failed.

Design

Our design goal was to obtain a retro, arcade game that gave players an easy way to connect with their friends and play a game that reminds them of their past.

- Each player gets their own ship and joystick to control it
- Each player is assigned an item, shown at the top left of their ship, that they must collect, along with a progress tracker



Demo Video

<https://vimeo.com/273665395>

Conclusion

- Game creation in Unity is both an artistic and technical challenge. Creating an original game idea that people will enjoy is something that game designers constantly struggle with, but once those design details are ironed out the real fun begins
- Actually implementing your idea is just as, if not more, challenging as our team soon found out. Once we had solved a major gameplay bug we would quickly find ourselves faced with another one, and would have to spend more hours nervously debugging, or be forced to make a major design change.
- In the end however we were able to successfully implement our core vision and have a final product that we hope everyone will enjoy playing.