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# Casual Games and Happiness

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# CASUAL GAMES AND HAPPINESS

## Introduction

My thesis project focuses on creating a virtual reality interface that relies solely on head movements, allowing people with limited motion to effectively navigate the interface. One of the great affordances of virtual reality technology is that the motion sensors in the headset allow the user to communicate with the machine without using their hands. Yet virtual reality games heavily rely on hand controllers for navigation and gameplay. I aim to design an interface that is useful in a variety of limited motion situations, such as long-term hospital stays, airplanes, chemotherapy treatments, waiting rooms, and so on.

I decided that designing an interface for a casual game would be most suitable for my thesis project target audience. In the following sections, I will explain why I chose a casual game.

## What is a Casual Game?

Casual games, such as indie hit *Stardew Valley*, farming simulation *Harvest Moon*, and Nintendo's popular social simulation game *Animal Crossing*, have a reputation of helping players relax and unwind. Gaming Researcher Jasper Juul describes a casual game as, "The design does

not need to be segmented or repeatable, but the player should be able to easily interrupt the game without serious consequences and return to the session later" (*A Casual Revolution Reinventing Video Games and Their Players*, Jasper Juul).

Generally speaking, casual games have simple gameplay and user interfaces, making them easy to understand and playable for most age groups. The Casual Gaming Association even defines casual games as "fun and easy to learn and play" on their archived website ([www.casualgamesassociation.org](http://www.casualgamesassociation.org), accessible through the WayBackMachine). This is part of what made casual games a good choice for my thesis project -- the simplicity of the gameplay allows for navigation with fewer degrees of motion. Casual games are also marked by their ability to play in short sessions because of their aforementioned interruptibility.

## Jane McGonigal's Four Secrets To Making Our Own Happiness

In *Reality is Broken*, Jane McGonigal explains what she calls the "four secrets to making our own happiness" (*Reality is Broken*, Jane McGonigal, p. 45-51).

### 1.) DAILY SATISFYING WORK

The first secret is daily satisfying work, which differs between people, but always means "being immersed in clearly defined, demanding activities

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## ANDREA BRUCCULERI

that allow us to see the direct impact of our efforts.”

### 2.) HOPE OF SUCCESS

The second secret is the experience or ongoing hope of being successful. McGonigal explains this as us wanting “to feel powerful in our own lives” and “be optimistic about our own chances for success, to aspire to something, and to feel like we’re getting better over time.”

### 3.) SOCIAL CONNECTIONS

The third secret is social connections. Even the most introverted among us still wish “to share experiences and build bonds” as this is where the majority of our happiness comes from.

### 4.) MEANING

The fourth secret is meaning, or “the chance to be apart of something greater than ourselves.” This is from the natural craving to belong and contribute to a community.

To summarize, the four secrets are daily satisfying work, experience or hoping for success, social connection, and having meaning. One of the key arguments in *Reality is Broken* is that games are exceptionally good at making us happy because they help us feel productive, meaningful, successful and social in our virtual worlds. Even if the productivity is completely artificial, it is enough to cause delight and satisfaction in people who are not feeling

productive and meaningful in other aspects of life.

I hypothesize that casual social simulation games, such as *Animal Crossing*, have the highest potential of making people the happiest, according to McGonigal’s four secrets. This is once again thanks to the interruptibility of casual games.

### Interruptibility

**Casual Game interruptibility offers players a chance to engage in a daily satisfying activity with minimal commitment, or minimal reason to sacrifice other activities.** However, not all casual games are truly interruptible. A truly interruptible game allows the player to save their progress and quit at any point, or otherwise offers no consequence for the player suddenly quitting the game.

For example, in *Animal Crossing*, a player is always one only press of a button away from saving and exiting the game. No opportunities will be lost if the player returns at a later time. *Animal Crossing* even auto-saves during gameplay, so potential progress lost from quitting the game unexpectedly is minimal. The game lacks time-sensitive quests, allowing the player to progress at their own pace.

By contrast, *Stardew Valley* has only one save point-- the player’s virtual bed. If a player does

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## ANDREA BRUCCULERI

not go to their bed to save before quitting, their progress for the day will be lost. Granted, one “day” in *Stardew Valley* lasts only about 15 minutes, minimizing the amount of progress that can be lost as a player is forced to save exactly one time per day (at the end of each day, when they go to bed). A player cannot save without ending the day, so there is a non-zero opportunity cost to interrupting the game mid-day to save. The consequence for not saving the game or for saving mid-day (therefore ending the day) is fairly minimal, but still more present than *Animal Crossing*, making *Stardew Valley* less interruptible.

### MY HYPOTHESIS ON INTERRUPTIBILITY

I theorize that true interruptibility in a game is the most compatible with a happy life, according to McGonigal’s four secrets to happiness. This is mainly due to the third secret: social connection.

Consider the following excerpt from McGonigal’s *Reality is Broken*:

*“More gaming by more people is the primary goal of the industry. But the industry wants to create lifelong gamers: people who can balance their favorite games with full and active lives... Beyond a certain playing threshold—for most gamers, it seems to be somewhere around twenty hours a week—[gamers] start to wonder if they’re perhaps missing out on real life” (p. 43).*

People who play video games too often or who become addicted to games will certainly start to

miss out on real life. While many games allow gamers to connect with other people online, this is not what McGonigal is referring to in her third secret -- she clarifies that we gain “a large percentage of our happiness from spending time with the people we care about” (p. 49).

Interruptibility is not the magic-bullet solution to video game addiction, but casual gaming certainly has a case for keeping people involved in real life. Casual games are not designed to be addicting. They are designed for short bursts of low-stakes tasks and entertainment. They are too simple to be fun to play all day. The utterly low commitment to continue gameplay makes putting down the game to join your family at the dinner table much easier. It makes the game something that can be as ornamental to your life as reading a morning newspaper or watching a TV show before bed.

**Part of casual game interruptibility means that the game isn’t gripping enough to cause players to miss out on real life.**

### What’s the Point of Real Passage of Time and Weather?

Casinos are cleverly built to keep people gambling inside -- they are windowless, clockless and open at all hours. It is intentionally easy to forget what time it is while playing casino games. Large casinos, such as the ones in Las Vegas hotels, have a variety of other tricks to keep people engaged. Hotel staff provide players with

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## ANDREA BRUCCULERI

everything they need to keep playing -- food and drinks delivered right to your seat, onsite counters and ATMs, and deceptively active walkways as the casino is often strategically placed in high-traffic areas.

McGonigal says that, "Being out of control is a fundamentally stressful feeling. Researchers have shown that it takes a huge hit on both our happiness and our physical health" (p. 149). Casinos deprive people of methods to keep track of and control their time. While gambling can be fun, the consequences of too much gambling can severely deteriorate a person's health and happiness.

### MY HYPOTHESIS ON A REAL PASSAGE OF TIME AND WEATHER

A real-time simulation game can do the exact opposite of a casino. It can help the user feel in control of their playtime. This is important to player happiness because, according to McGonigal, control is crucial to happiness and "a feeling of control in a goal-oriented environment can create a powerful drive to succeed" (p. 67).

I will again use *Animal Crossing* as an example because *Animal Crossing* progresses according to the real passage of time with accurate seasonal weather and scenery changes. In *Animal Crossing*, players continuously see a digital clock displaying the real time of day on screen. The sun, moon, and stars come and go in real time, indicating the natural passage of time

to the user as the lighting in the game shifts. At night, certain characters and shop owners in the game go to sleep, limiting nightlife and gameplay opportunities. There are a limited number of resources available per 24 hour period, restricting the amount of activities available per day. Non-playable characters have different schedules and behaviors on different days of the week, and even the local wildlife accurately shifts with the passing months. This spreads out the activities and quests over the year and minimizes the benefit of binge-playing the game.

*Animal Crossing* does not track a user's IP address, but uses the time zone and hemisphere of the user to keep the scenery and game time accurate. If a player was locked in a windowless room playing *Animal Crossing* for a year, the player would be able to accurately keep track of day and night cycles, seasons, days of the week, and holidays. While *Animal Crossing* does not track real-time local weather, I think this could be beneficial in that it could remind the user that today is a beautiful day, that the rain has finally stopped, or that the first snow of the year has arrived.

Ultimately, being able to keep track of time is empowering for a user because it helps them keep in control of their playtime, and therefore their productivity. This is also McGonigal's second secret to happiness -- to feel successful, meaning "to feel powerful in our own lives." While success in a game can feel good, it is best to be

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## ANDREA BRUCCULERI

successful in real life. *Animal Crossing* is designed to only be a temporary distraction from life each day because only so much can be accomplished per 24 hours. At any point, the player can see the onscreen clock, consider the time, and make a no-consequence decision to turn off the game and come back tomorrow.

### Technical Project

I created (or participated in the creation) of a simulation project with three real-time components. The simulation can display the time of day for the user, get the local weather of the user, and adjust the approximate sun positioning to match the time of day for the user.

In the simulation, the user can press key “t” to see the current time on their device (Figure 13). The user can move around a basic landscape of simple shapes to observe shadows moving throughout the day from the dynamic sun. During the day, the simulation shows a sun in a blue sky with white clouds (Figure 1, Figure 11). At 6 a.m. and 6 p.m. the user can see a red and gold sunset or sunrise (Figure 2, Figure 3). After a couple “golden hours”, the simulation is dark and stars appear in the sky (Figure 4, Figure 12).

Using an API, the simulation can get basic information on the local weather. This could be used to change scenery in the game although this feature has not been implemented.

### Methods

My simulation was created using the Unreal Engine created by Epic Games. The functions of the simulation were created using Blueprints, a node-based visual scripting system built into the Unreal Engine. There are figures showing the entirety of the Blueprints used to get the system’s time, create the real-time day-night cycle, and get the real-time weather from an API.

#### GETTING THE SYSTEM TIME

I am able to get the system’s time using the GetTimeOfDay node (Figure 8). To get the time in a readable format, I connected this to an AsTimespan node and then to a Print node. I connected a simple “t” key trigger to the Print node to display the time of day on the screen for a couple seconds (Figure 13).

#### THE REAL-TIME DAY-NIGHT CYCLE

The first step to a real-time day-night cycle was to create a dynamic skylight, or a “sun” that would move across the sky during gameplay. This skylight needed to update continuously and move 360 around the world of the player. One day has 86,400 seconds, so I divided one 360° rotation by 86,400 to create a skylight that moved 1/86,400 of 360° every second (Figure 9). I set this process to start from midnight, just like how clocks start counting time for the new day at midnight.

This process is built around the DayCycle node (Figure 10). I programmed this node so that it

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## ANDREA BRUCCULERI

starts the day-night cycle and clock on start and updates the sun position and clock with each second. I connected it to the CombineRotators node and that to the SetActorRotation node to specifically handle the sun's rotation on the Y axis.

### GETTING USER'S LOCAL WEATHER

To collect weather data, an API call to [www.openweathermap.org](http://www.openweathermap.org) was used. This API takes the user's city, state, and country code as parameters to provide basic weather information about the area. For example, the API may list Durham, North Carolina as "sunny" or "cloudy." OpenWeatherMap also requires each developer to acquire a custom API key to use with each request.

The VaRest plugin was downloaded to the Unreal Engine simulation project to allow for server communications. On play, a CallURL node sends the API call URL as a get request to the server and constructs a JSON file to hold the information (Figure 5). When the information transaction is completed, there is a callback event that gets the object that was responded with and gradually subdivides the contents (list -> contents -> weather) to find the current weather (Figure 6, Figure 7). For the sake of this Blueprint, the current weather is printed to the screen, but this information could be used to affect gameplay logic.

### Proposed *Animal Crossing* Case Study

As I mentioned before, *Animal Crossing* is a casual social simulation game that uses the user's time zone to allow the game to progress in real time with accurate day-night cycles. This game is approachable and appropriate for all ages and offers true interruptibility. While *Animal Crossing* does not provide real-time weather, there are numerous seasonal changes, holidays, and weather patterns that allow for an impressively life-like progression of time and space.

I propose that a case study of the latest installment of the franchise *Animal Crossing: New Horizons* would be a strong contribution to the gaming research community. Numerous Youtube videos and Reddit threads celebrating *Animal Crossing* as a saving grace for those struggling with mental health (*Boldly Wired*, 2018) or even the effects of isolation during the COVID-19 pandemic (*r/AnimalCrossing*, 2010). One need only Google search "*Animal Crossing* and mental health" to see a slew of testimonies from people of all ages, including doctors (*Kelly Wynne, Newsweek*). However, I struggled to find any scientifically valid studies regarding *Animal Crossing* and player happiness, stress, or other mental states. I believe a case study on how this casual game affects mental health could open the door to a slew of studies on how real-time in casual games encourages player happiness and productivity in the real world compared to other games. For now, the biological benefits of *Animal*

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## ANDREA BRUCCULERI

*Crossing* and its life-like time simulation lie exclusively in speculation

### Conclusion

This project has been a great exercise in helping me think about and conduct research for my thesis. While I knew that casual games would be easier to construct an interface for within only six degrees of motion, I had not fully considered the potentially psychological and technical benefits of creating a real-time simulation. Considering casual games and *Animal Crossing* from these angles has brought new light to my ideas and inspired me to continue studying the effects of a real passage of time and weather simulations on gameplay and user enjoyment.

The discussion of McGonigal's four secrets to making you own happiness also left me considering the best ways to design games and interfaces for user happiness. People in limited-motion situations may be in great need for ways to feel productive, meaningful, and successful, whether their situation be temporary or permanent. I am inspired to continue researching game design in casual games and other stress-reducing experiences to find out more about how games can make us happy and improve our world.

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## FIGURES



Figure 1: Daylight



Figure 2: Early Sunset



Figure 3: Late Sunset

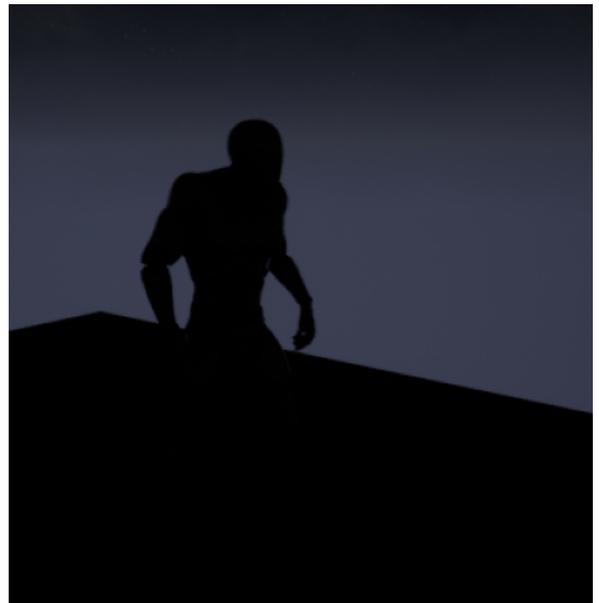


Figure 4: Midnight

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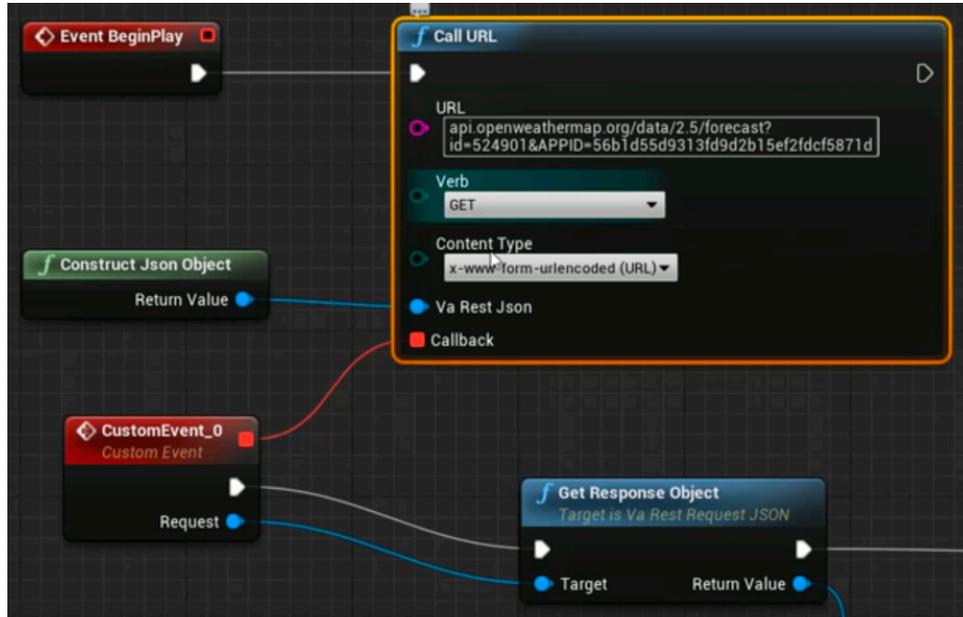


Figure 5: Blueprints to send the API call URL as a get request

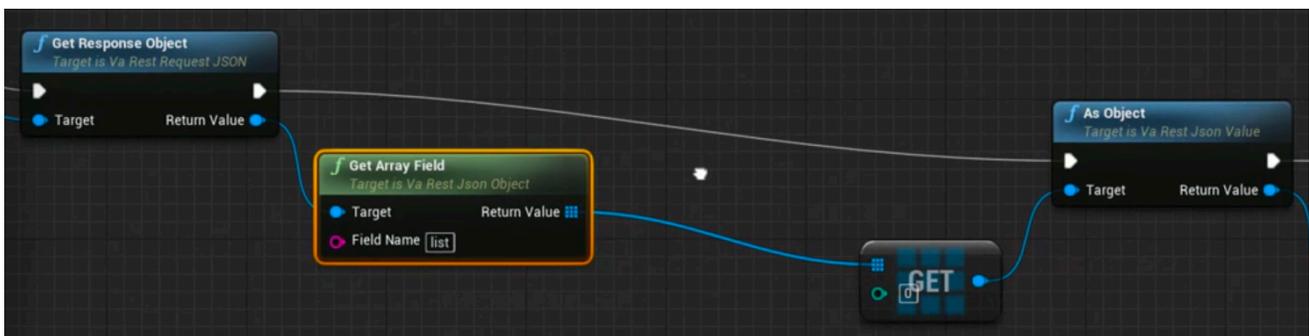


Figure 6: Blueprints subdividing the response object contents to find the local weather

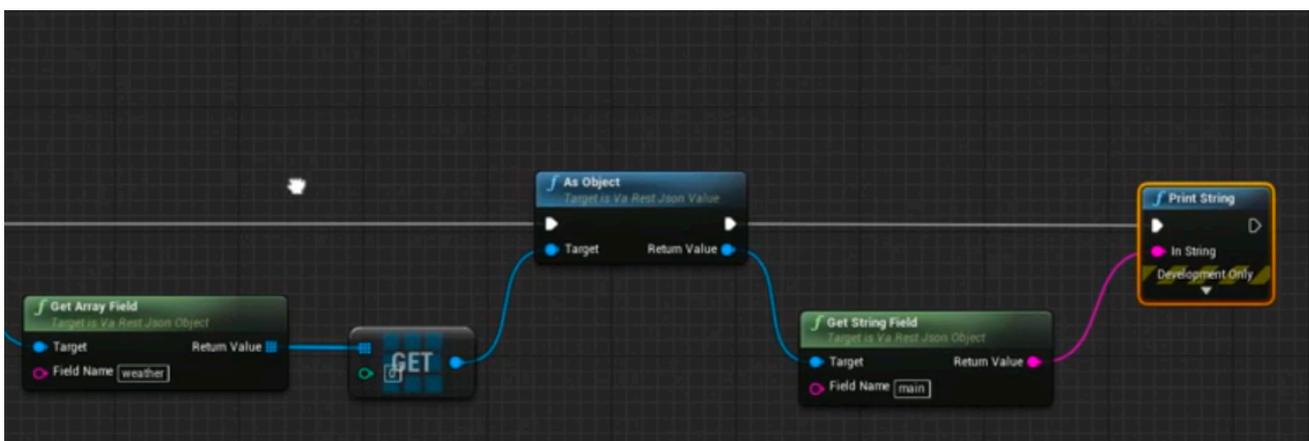


Figure 7: Blueprints getting the local weather information and printing it to the screen

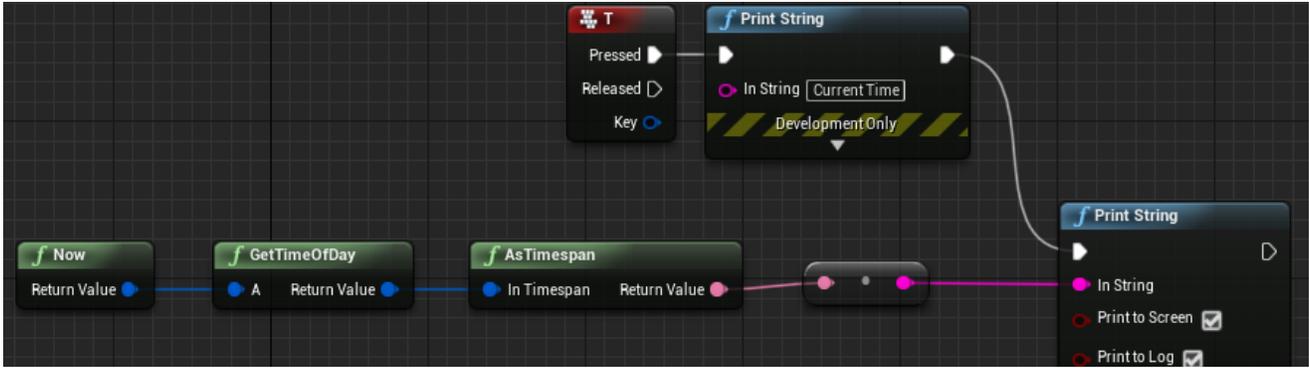


Figure 8: Blueprints getting the player's system time

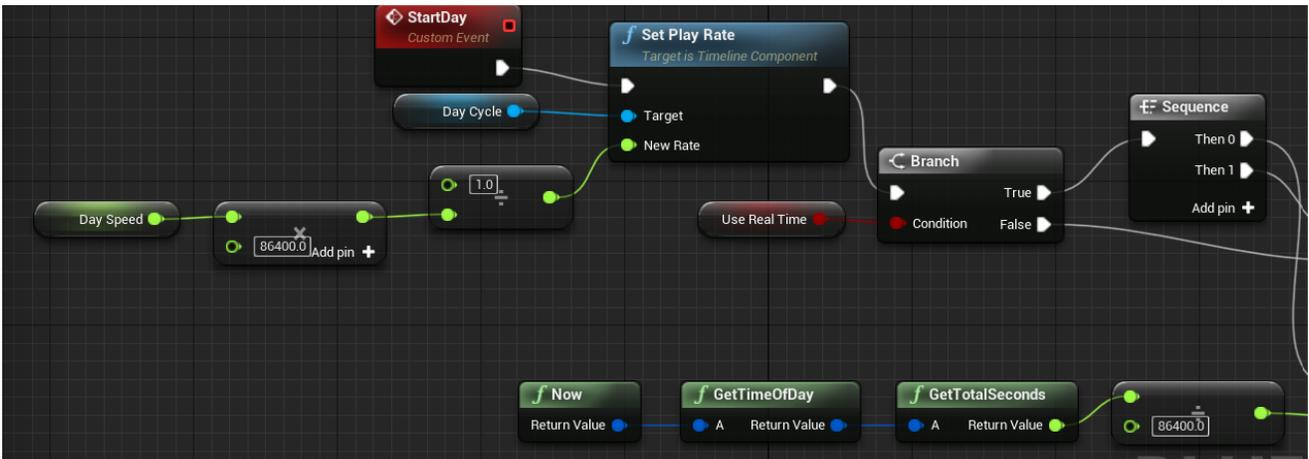


Figure 9: The day-night cycle Blueprints showing the math to set the day time

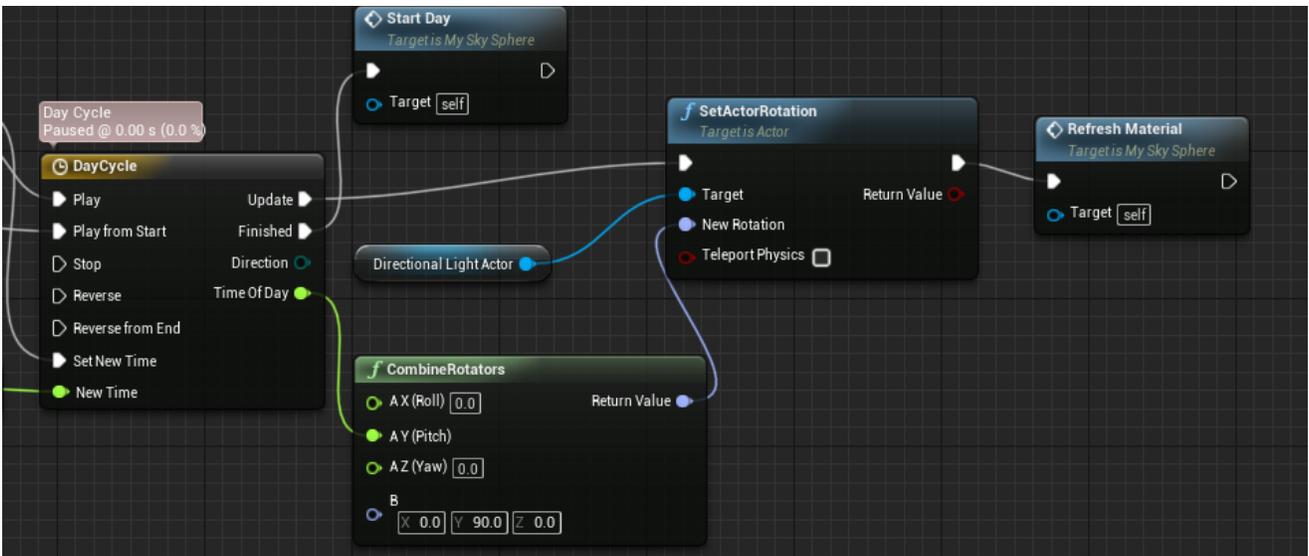


Figure 10: The day-night cycle Blueprints showing the DayCycle and sun rotation nodes

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**ANDREA BRUCCULERI**

Figure 11: Real-time play at 2 p.m.

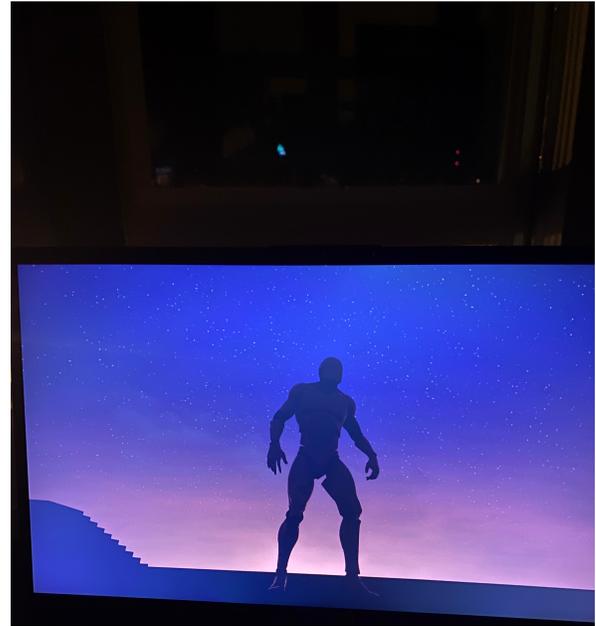


Figure 12: Real-time play at 9 p.m.



Figure 13: Pressing “t” to demonstrate the simulation getting the system time (Nintendo Switch for time reference)

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