NASA SPACE APPS CHALLENGE BRASILIA 2018

Singularity:

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Challenge 6 – A UNIVERSE OF BEAUTY AND WONDER

On The Shoulders of Giants

Create a game using images from the Hubble Space Telescope as integral components!

Background

Since the early 1990's, NASA's Hubble Space Telescope has provided the world with a nonstop stream of data that has helped resolve some of the biggest questions in astronomy – while providing fodder for brand-new questions, as well. As the first major optical telescope to be placed in space, Hubble views the universe from an unobstructed vantage point above the distortion of the atmosphere, far above Earth's clouds and light pollution. Scientists have used Hubble to observe the most distant stars and galaxies as well as the planets in our solar system.

The Hubble Space Telescope has made more than 1.3 million observations since its launch, as it whirls around Earth at 17,000 miles per hour. It has peered back into the distant past, to locations more than 13.4 billion light-years from Earth – and yet it can view objects as nearby and small as the collision of asteroids in our own solar system. The scientific discoveries that have resulted are legendary – and as it has done all these things, it has also given us images of stars, galaxies, and nebulae that are awe-inspiring and stunningly beautiful. Hubble images are not CGI; they are not simulations. They are REAL, and they have shown us our universe as we had never seen it before.

Your job is to create a game using Hubble images as integral components of the game-play. You can design and prototype a board game, a card game, a computer game, an app or virtual reality game. You can make it competitive or collaborative, from single-player to massively multiplayer; you can focus on the science, the aesthetics, the inspiration, or all three – the choice, and the story of your game, are up to you.

URÂNIA

Urania was, in Greek mythology, the muse of Astronomy, mathematics, memorys, surrealism and Astrology. Inspired by the legend of this Muse and the stunning images of the Hubble telescope provided for this challenge, we seek to bring young people and children closer to the history of international space exploration, as well as to help those who want to find a way of life in science to realize that contact with science is magical, grandiose, charming and above all, possible, including for minorities historically excluded from academic and scientific societies.

Through brief works and interactive mini-games that tell the story of American space exploration, the aim is to make the young audience believe in their own talent and dedication and understand that history is only done when you do not give up on the first difficulties.

In addition, the historical detail contained in the game research process, coupled with the Hubble telescope images present throughout the game, do the job of showing alternative realities and awakening creativity, which is a way to include socially and awaken for new alternatives of life, as scientific dissemination, anywhere in the world, changes the future of education and science across the globe.

INTRODUCTION

Urania is an educational point-and-click game where the main goal is to revive high relevance missions in NASA's space exploration history.

The main historical point portrayed in the Demo version is the Mercury Project - 1958 to 1963, which was NASA's first manned space exploration project. It aimed at the long and medium term to prepare the technology that would take man to the moon.

Another important point that appears in this project is the famous Kennedy speech that challenged America to land on the Moon before the late 1970s changed the initial plans of the Mercury project.

Successful in testing the conditions of astronauts and equipment, this project prepared the technology that would be used in the Gemini and Apollo spacecraft.

JUSTIFICATION

In Brazil, not only the question of space exploration does little dialogue with society, but the entire scientific and academic universe is very distant from the reality lived by a large part of the population.

According to data from the last official census, only 7.9% of the population has University degree[1], a universe in which a much smaller portion holds diplomas in areas of exact sciences such as Mathematics, Physics and Aerospace and Electrical Engineering, courses most sought after by professionals who seek opportunities in the space exploration sector.

[1] https://guiadoestudante.abril.com.br/universidades/censo-do-ibge-mostra-crescimento-no-numero-de-brasileiros-com-ensino-superior/

Moreover, in Brazil today, these courses do not even rank among the ten most sought by students.[2]

It is also noted that this exclusionary reality stems from the common perception that space exploration is an exclusive activity reserved for an elite of individuals, which makes it distant even for the most curious young people.

Thus, one of the main challenges is to make this knowledge more palpable and innovative, and this is what this present project proposes.

GAMEPLAY

The software builds on four chronologically ordered gameplay stages all of which correspond to NASA's notorious explorative missions.

Each phase in turn is composed of several events, or interactive moments, in which the user must interact with the elements on the screen to solve questions and challenges related to the historical context.

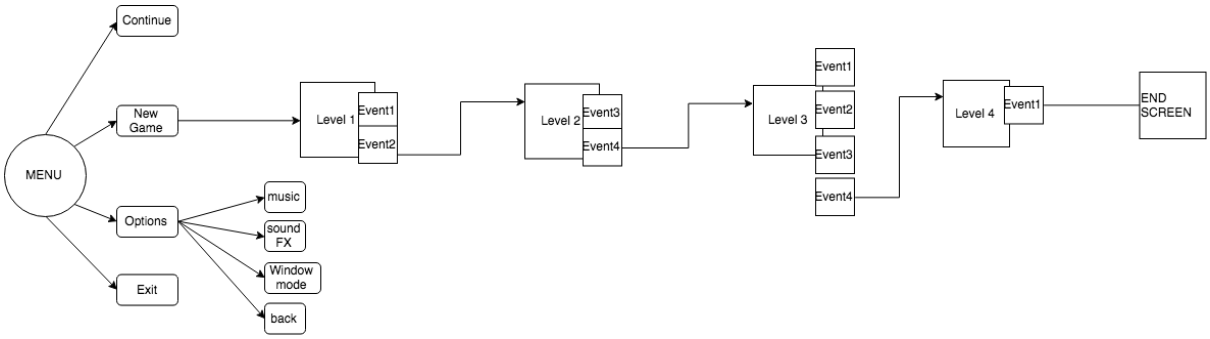
TOOLS USED FOR DEVELOPMENT

1. Microsoft Windows 10
2. Construct2
3. Hubble telescope images
5. GIMP

Construct2 is an HTML5 game development platform that can be downloaded here.

ARQUITECHTURE

The game's logic structure is shown bellow:



[2] https://g1.globo.com/educacao/guia-de-carreiras/noticia/dez-carreiras-tem-quase-metade-de-todos-os-formados-no-brasil-desde-2001-g1-tera-serie-de-reportagens.ghtml