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Gameplay Audio Description: *Death of Internet* as a Pilot Study

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Abstract. Audio description (AD), an accessibility service that narrates visual elements for persons with visual disabilities, is starting to be implemented into video game trailers and cutscenes. However, its potential to improve accessibility in real-time gameplay has yet to be fully explored. In their final project of a Master’s degree, a team of game design, development, and art students at Cnam-Enjmin University (France) rose to the challenge and created *Death of Internet*, a PC video game with gameplay AD. This paper presents the process of AD implementation, from the writing of the script to its integration with other accessibility features, namely text-to-speech and navigation from one point of interest to the next. Although user testing is required, this pilot study highlights the game-changing possibilities of AD for players with and without sight, industry, and training of future professionals.

Keywords: Accessibility, Audio Description, Video Game, Visual Disability

1 Introduction

More than three billion people around the globe regularly play video games [1]. But when it comes to players with disabilities, who account for 16% of the world population [2], the numbers are less rosy. According to Westin and al. [3], playing a game is “the voluntary attempt to overcome unnecessary obstacles,” whereas game accessibility is “to remove unnecessary barriers for people with disabilities, within the limitations of game rules.” Although interest in accessibility within the game industry has increased significantly in the past five years, there is still a lot of work to do to make mainstream video games accessible for everyone.

Video games are primarily based on visual stimuli, which pose accessibility barriers for players who are blind or have low vision. As a result, their ability to complete the interaction may be hindered, as well as their chance to progress in the game [4]. Traditionally, players with visual disabilities resort to playing with someone else’s assistance, thus compromising autonomy, or to limiting their experience to audio games,

whose interactions are based on sound instead of visuals. More recently, assistive technology may be available in video games, such as text-to-speech (TTS), screen magnifiers, and built-in accessibility features that modify the mechanics of the game, like difficulty customization, assisted gameplay, or bypassing quests.

Audio description (AD) is an accessibility service that narrates visual elements for persons who cannot access the visual channel, particularly those without or with limited sight. It provides essential information about settings, characters, and actions in the silent pauses between the soundtrack of the source material, namely dialogue, sound effects, and music. In 2020, it was implemented in Ubisoft’s game trailers and, in 2022, in the cutscenes of Naught Dog’s *The Last of Us Part I*. However, its potential for real-time gameplay is still largely untapped.

This was the starting point for *Death of Internet*, one of the first games ever to implement gameplay AD. It was developed by eleven students at Cnam-Enjmin (*École nationale du jeu et des médias interactifs numériques*) in France as their final project for the Master’s degree in Video Games & Interactive Media. The authors of this paper were involved in the development as AD researcher, UX designer, and supervisor. Here, we present the state of the art of AD in video games, *Death of Internet*, and its accessibility features for players with visual disabilities, and future work regarding gameplay AD.

2 State of the art

The use of AD is widespread in film, television, museums, opera, and theater. However, it has only just started making its way into video games. Players with visual disabilities have expressed their interest in this accessibility service, as shown in a 2022 survey by RNIB [5]. They request descriptive narrations about scenarios, characters, and actions to be combined with audio and haptic cues, such as text-to-speech technology (TTS), surround sound, and controller vibration.

First efforts to integrate AD into video games have focused on non-interactive media, namely game trailers and cutscenes. In this case, AD follows the same conventions as in film, particularly regarding the time constraints and the interplay between different soundtrack elements. However, interactivity poses new challenges: how can AD address the non-linearity that results from player agency? What are the linguistic challenges of describing fast-paced events or characters customized by players? What about the technical challenges of implementing AD through the game engine? To answer these questions, it is important to keep in mind that gameplay AD may not be enough of a solution on its own, but instead another feature that adds to TTS, audio cues, and haptic feedback. The main challenge here is to determine which feature is more suitable for each interaction [6].

In 2022, three games started tackling these issues by integrating AD into gameplay: Bridge Multimedia’s *Cyberchase: Duck Dash* [7], CowCat Games’ *Brok the Investigator* [8], and Soft Leaf Studios’ *Stories of Blossom* [9]. The three are slow-paced, narrative games, meaning that there is enough time for AD to describe settings, characters, and points of interest (POI). *Duck Dash* combines AD with TTS for the randomly generated events in the game, while *Brok* and *Stories of Blossom* pause the action

while AD is playing. In *Duck Dash* and *Stories of Blossom*, AD is voiced by the game’s characters, adding to the immersive experience. In turn, *Brok*’s AD is read by a synthetic voice. In all three, AD is only available in English, meaning that there are still linguistic barriers for some players. In fact, localization into different languages should cover both the game and its accessibility features.

Simultaneously, in 2022, *Death of Internet* was developed in an educational context aiming to identify the challenges and potential of gameplay AD for players with and without sight. These are presented hereafter.

3 Death of Internet

Your childhood friend, Nova, is dead. No trace of her in reality. However, while mourning in her apartment, you receive a message from her. Fall down the rabbit hole and lose yourself in the meanders of her intimacy through reality and the internet. Dive into her troubles and loneliness to perhaps understand what led to her death. But is she really dead?

These are the opening words of *Death of Internet (DOI)*, a single-player, first-person, point-and-click PC game. The player controls Diane, a young woman searching for her friend, Nova, who has recently disappeared. The story takes place in a retro futuristic world that blends colorful nostalgia with a cold thriller, creating a unique and unsettling atmosphere. The game was developed in Unreal Engine 5 by a team of eleven students: three graphic designers, two programmers, two game designers, two sound designers, an UX designer, and a project manager.

All interactions are based on handling objects. There is no Head-Up Display, although a cursor appears on screen when the player is close to an object they can interact with. There are only two inputs: the left button on the mouse to interact with an object; and the scroll to rotate it. Both inputs may be remapped on the keyboard, along with the following accessibility features: independent volume settings, customizable screen resolutions and cursor color, full and windowed mode, X and Y axis inversion, sensitivity adjustment, subtitles for character dialogues and settings for font size, color, background opacity, and speaker name, deactivation of screen flash effects, and a “Blind Mode” for players with visual disabilities, detailed in the next section.

4 Playing without sight

Death of Internet poses three main interaction constraints for players with visual disabilities: navigation (i.e., handling the free camera to explore the scenario), selection (i.e., handling the mouse cursor to interact with the visuals), and comprehension of visual elements. To tackle them, three features were combined, all under the Blind Mode setting: POI navigation, TTS, and AD.

POI navigation allows the player to move from one narratively relevant point of interest to the next through a fixed position camera. TTS is a narration of all texts in the game, including UI and in-game written content, and voiced by a male synthetic voice.

AD is a description of the scenario, points of interest and events in first-person, from the point of view of Diane and voiced by its female actress.

In the Blind Mode, inputs are restricted to moving and interacting with the POIs. AD and TTS are automatically launched when the player arrives at a scenario, interacts with an object, triggers a game event, or selects a UI element. At any moment, the player can provide a “Move” input, moving to the next or the previous POI.

Let’s take fig. 1 as an example. When the player with the Blind Mode activated enters the room, the AD plays with Diane’s voice: “The capsule is round, bathed by a warm, orange light. The walls are metallic, but the space is cozy. It is full of colorful pillows piling up on the floor. There are two holograms showing blog posts, one page of a notebook laying on a pillow, and one small post-it note glued to the wall on the right.” Here, the POIs are the two holograms, the notebook page, and the post-it note. When the player interacts with the notebook page, the AD narrates: “On an orange pillow, there is a notebook page of Nova’s handwriting. She used a black pen. Maybe they are from her diary. But why would she tear out the pages? Let’s read what it says.” Then, the TTS reads out the words written by Nova: “It’s difficult for me to look at someone in the eyes.”

The TTS posed a programming challenge. While AD was added as an additional voice line, TTS was directly integrated through Unreal. This means that TTS settings are taken from the player’s PC configuration. As a result, TTS speed could not be predicted so, to ensure that there is silence before launching the next voice line, an AD or TTS line is always preceded by an empty TTS.



Fig. 1. A point of interest: the entry of a capsule.

5 Conclusions and future work

Death of Internet is one of the first-ever attempts at implementing AD into gameplay. The interdisciplinary approach that joined the efforts of each specialty of the development team with an AD researcher proved to be successful in creating a new gaming experience, called the Blind Mode. Although it is specifically addressed to players with visual disabilities, it may also be enjoyed by people who are looking for a challenge or a different experience of the same game.

While the UX designer was the main person responsible for the AD in *Death of Internet*, every team member's work was impacted by its implementation. For example, the project manager prioritized AD in the production process, which aided its rapid implementation. After the completion of the project, the graphic artist raised an interesting possibility: she realized that she could have been involved in AD scripting, because she could provide insight about the characters and scenarios she had designed. This shows that accessibility is cross-disciplinary and concerns all members of the development team in sometimes unforeseen ways.

Future work includes conducting playtests with players with and without visual disabilities to assess the usability of the Blind Mode and the AD. Likewise, different versions of AD could be created and compared, such as first and third-person AD, and voiced by a human or a synthetic voice. The impact of this feature on gameplay could also be studied through reception research. Moreover, more training and education are also needed beyond UX designers and programmers. Joint seminars between development teams, accessibility providers (such as audio describers) and users could set the ground for a common language to create quality accessibility from the design stage of the game.

Finally, this pilot study has highlighted that AD provides game-changing possibilities for players, industry, and training of future professionals in a cross-disciplinary manner. The rapid development of the game, in just three months, shows that accessibility is not difficult or costly to implement if done from the start of the design process. As the game designer in an informal interview conducting at the end of the project, "if students can implement AD in a game, everyone can. With accessibility, we have everything to gain."

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