Personalizing Aquarium Experiences Using RFID Technology

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HOLOGIC®

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Introduction

The purpose of this project is to demonstrate the potential of RFID technology in its ability to provide unique experiences personalized to visitors at Birch Aquarium. The Registration Kiosk, Admin, and Terminal system (RKAT) is responsible for both delivering a personalized, interactive experience using RFID technology and providing content updates through a website. The website includes various Professional Pathway web pages, a registration web page, and an admin web page for updating terminal content.

RFID Technology

Radio-Frequency Identification (RFID) uses electromagnetic fields to identify and track tags attached to objects.

We use cards embedded with RFID tags to keep track of individual user's preferences so that we can provide them with information that matches their interests.

Professional Pathways

ENGINEER

Engineers focus on designing tools for the experiments. As an engineer you will learn how professional engineers construct and apply these tools in their careers.

Recommended for: Designers, Problem Solvers

BIOLOGIST

Biologists study living organism and their influences on their enviroment. As a biologist you will learn how professional biologists use scientific method to learn about how living organisms function.

Recommended for: Scientists, Animal Lovers

CLIMATOLOGIST

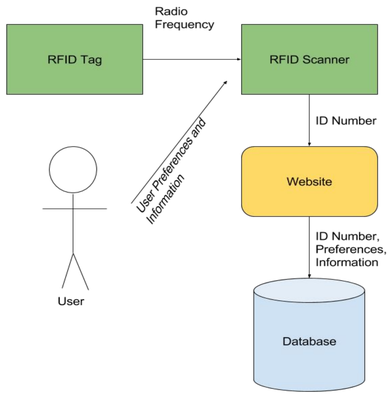
Climatologists care about the Earth's climate and environment. As a climatologist, you will learn about how scientists are caring for the planet and fighting against global warming.

Recommended for: Enviromentalists, Polar Bear Lovers

The main feature of our design is the Professional Pathways concept. It is an experience in which visitors can choose to take the role of one of the provided professions (e.g., Engineer, Biologist, Climatologist) and learn information about an exhibit from the perspective of that profession.

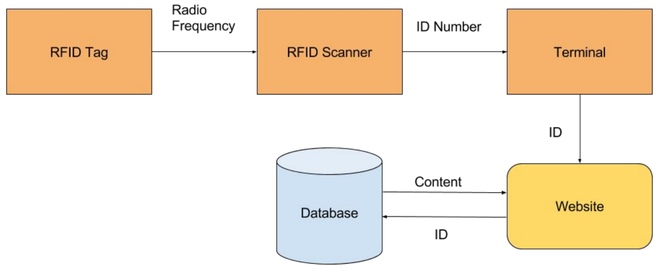
We developed the Professional Pathway concept because we believed that it would provide an experience unique to each visitor, delivering content that they are more likely to read and engage with.

Registration Kiosk



The registration kiosk will be placed near the entrance of the aquarium. It records user preferences, including their chosen Professional Pathway, and associates the preferences with the user's RFID tag. After registration, the user will be able to use their tag at any exhibit with a terminal.

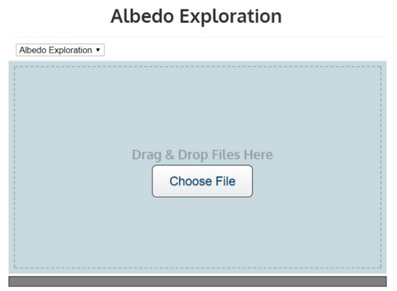
Terminal



The Terminals will be placed at exhibits throughout the aquarium to deliver a personalized experience to the user via a website. This is done via redirection to and from interactive web pages, specifically the default display page and the Professional Pathway pages, and dynamically retrieving content from the database.

Terminal UI utilizes four-directional swipe navigation to encourage a non-linear, interactive experience. Navigating through the pathway pages intuitively resembles swiping on a phone or tablet.

Admin



Dynamic Updates

Administrators can upload media files such as images and videos to update the content that is displayed on a chosen terminal.

View Analytics

Administrators can view statistics such as average user interaction time at terminals, and the amount of users that choose each Professional Pathway.

Conclusion

We created a kiosk-terminal system that provides users a personalized experience through the use of an interactive interface utilizing touch screen functionality and RFID technology. The RKAT is able to obtain content from an online database and distribute that content onto the terminals, as well as allow administrators the ability to update terminal content. We are confident that the RKAT, RFID System, and Professional Pathway design satisfy the needs of Birch Aquarium while showcasing the potential of RFID technology to make future exhibits more engaging, personalized, and interactive.

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