Innovation in *World of Water*

Team 10

Cutting-Edge Technology

Radio-frequency identification (RFID) and 3D motion tracking technology are used throughout *World of Water* to provide highly interactive and entertaining experiences.

RFID has found common use in many theme parks and is used commonly for seamless environmental interactions, higher levels of convenience, and better data insight for guest behavior. *World of Water* acknowledges the high value of this newer technology and strives to utilize it where possible, as it has the potential to immediately increase guest satisfaction, and in the long term, provide analytics which will immensely help improve the guest experience. The RFID tags will be hidden in the appropriately-themed devices shown below.

Environmental Survey Equipment with Digital Displays and Hidden RFID Tags

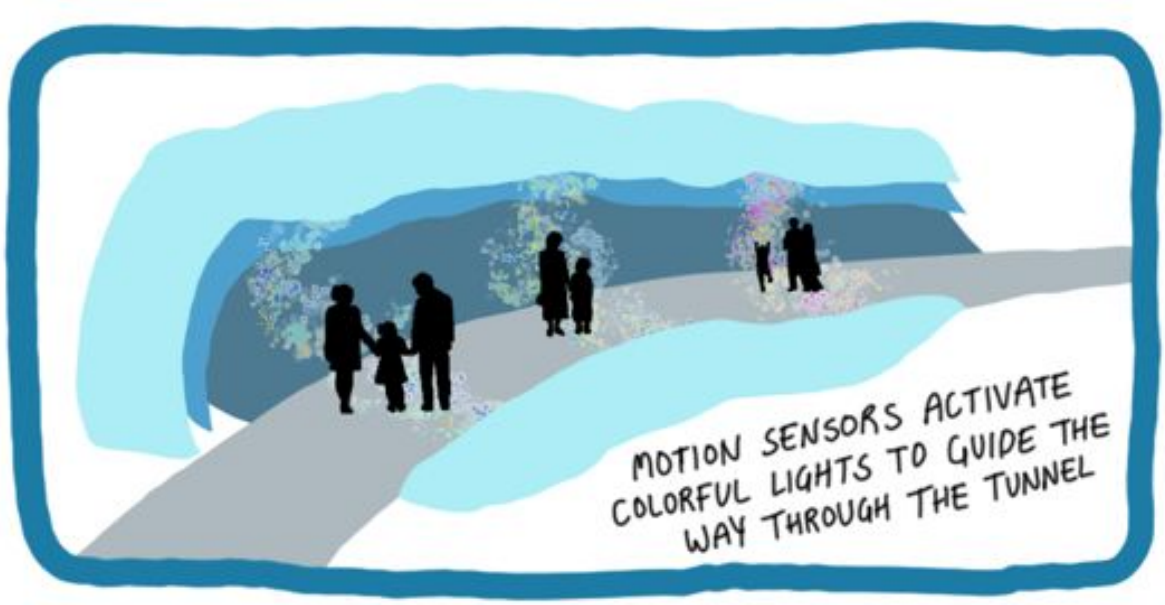
Something new *World of Water* will bring to guests is the wide implementation of 3D tracking in many of the offered experiences. Whether it be controlling a river's flow or walking through a rainstorm without getting wet, guests will get to experience water in a new way thanks to 3D tracking. This technology brings an unprecedented level of visitor control to create immersive and thought-provoking experiences.

Walkthrough Interactions

3D motion tracking will be heavily employed throughout *World of Water's* scenic walkthrough as one of the main implementations of interactive technologies. 3D motion tracking was specifically chosen as it provides the technology required for guests to alter their surroundings based on movement or actions. This lines up with the mission statement of "showing guests how they can change their worlds."

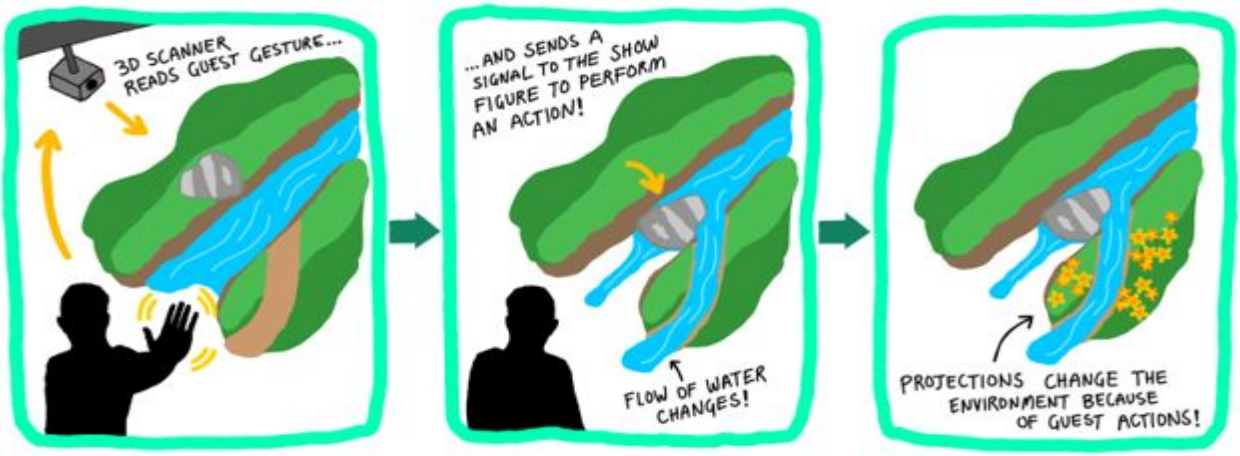
One instance of this will occur in the tundra biome: when guests walk through the ice tunnel (real ice, kept frozen from the backside), the tracking technology will follow movement and colorful LEDs hidden within the ice will light the way as they progress, making the tunnel glow and ripple beautifully with each passing group.

The Ice Wall at SeaWorld San Diego



Motion Sensors Activating Lights in the Ice Tunnels

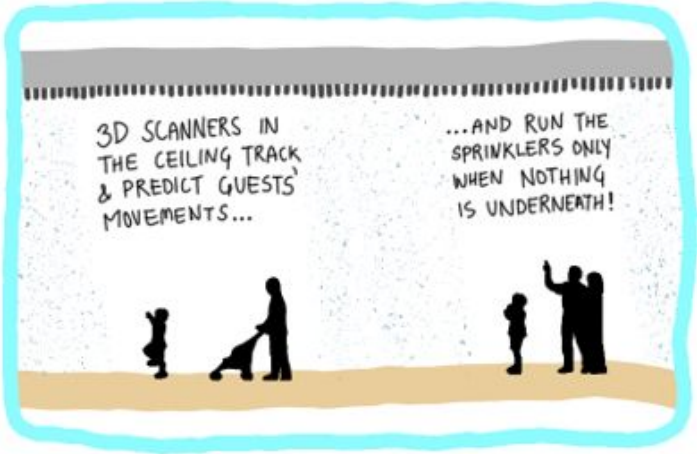
On several of the bridges going over the river, there will be a sign to show guests how they can influence the flow of water. As they face their palms toward the river, controlled objects from the surrounding scenery will “fall” in (via a simple robotic arm), changing the flow of the water and showing how natural or human-generated events can change a river’s course over time, creating new environments over time, as seen below.



Motion Tracking: Environmental Interactions and Resulting Impacts

One of the most exciting experiences will be the rainstorm guests encounter in the wetlands biome. Inspired by the famous Rain Room art installation (seen above), guests will encounter some point in the path where they will face a wall of rain and it will be the only way forward. As guests approach, motion tracking cameras will signal the sprinklers in the ceiling to stop the flow of water in a 6-foot diameter around the guests, literally parting the waters for safe passage and allowing guests to remain dry all the way through, acting as another metaphor for how they can change the world around them. It will be just one of many magical and introspective moments offered in *World of Water.*

Atmosphere of the Rainstorm Walk



How 3D Tracking Works for the Rainstorm Walk

Queue Area/Laboratory Interactions

As guests finish the walkthrough they will enter a state-of-the-art underwater ecologist laboratory, where the environment shows how scientists are working to study the water cycle in a new microscopic way. The shining centerpiece of this area will be the interactive, 30-foot diameter “fish bowl,” in the center of everything, which is themed to look like a glass window on the ground “looking out” to the ocean below. Similarly to the rain tracking from the walkthrough, the fish bowl will use motion tracking to follow guests moving across its surface and generate different interactions with guests with the digital fish below, including things like fish following guests, fish schooling around guests, and fish getting out of guests’ ways (think “parting the sea,” as seen below).

Example of “Fishbowl” Motion Tracking Interactions

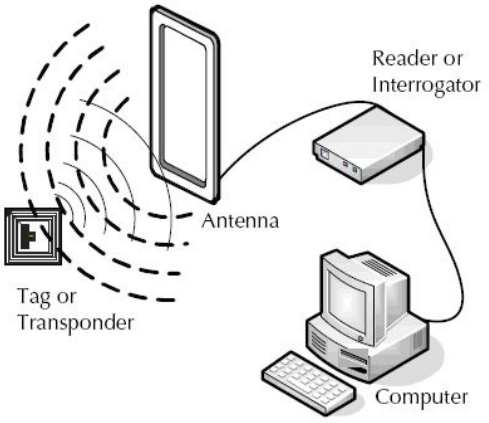
Ride Interactions

One of the challenges of working with groups is making sure all members receive a personal experience, or achieve a feeling of contribution in some way. The beauty of *Expedition Eco*'s 3D tracking interaction lies in its simplicity. The novel ride system's capabilities include increasing and decreasing elevation at relatively high speeds. Although guests are free to walk around inside the gondola cabins, they will experience gravity at up to 1.8 g's and weightlessness at up to 0.2 g's, allowable per ASTM F2291-18.6 standards.

Upon entering the show set portions of the ride, guests will be granted the ability to control the gondola's elevation changes together as a group - by voting with their hands. When it's the guests' turn to control the vehicle, the narrator will prompt them and flashing signals will show guests how to vote which way to move the gondola: arms up → vehicle goes up; arms out → vehicle goes down. The amount of votes determines the direction and intensity (speed) of the movement.

Present Uses of Proposed Technologies

RFID technology is something that has very recently broken into the themed entertainment world, but has quickly proven its value by giving guests more ways to interact with environments and helping theme parks track guest flow and spending habits, amongst other things. It works using only four main components - a tag, antenna, reader, and computer or data processor.



3D motion tracking has not been around for long, and doesn't yet have a major presence in themed entertainment. However, the technology is robust and has seen extensive usage in heavily-trafficked attractions such as touring art installations, such as the famous Rain Room by Hannes Koch and Florian Ortkrass. Many simpler versions of motion tracking have also existed for decades, such as the X-box Kinect, whose continued existence and popularity speaks to the promise of this proposed usage.