PROJECT 04 SANDBOX

PROJECT TITLE | **Creating a Stress-Free, Tourist-Friendly Miyajima**

COMPANY NAME | **Nippon Telegraph And Telephone West Corporation**

Making Travel and Life in Miyajima, a World Heritage Site, Smoother, Easier, and More Enjoyable with AI and IoT Technology

Miyajima, a popular tourist destination, is visited by over 4.5 million people from all over the world each year. Because of this sudden rise in popularity, the island is experiencing mass congestion on the land as well in the ferry ports. Plus traffic jams in the mainland ferry port of Miyajima-guchi are causing several dire problems for residents and travelers alike. For these reasons, NTT-West Hiroshima branch, along with the city of Hatsukaichi and The Miyajima Tourism Association have teamed up to solve this problem using the power of AI and IoT technology.

Creating a Stress-Free Tourist Destination with the Use of Sensors and Data Collection

Miyajima, the island home of the world heritage site Itsukushima Shrine and of beautiful views of the Seto Inland Sea, is one of the most popular tourist destinations in Japan. During peak hours, a babble of various languages can be heard floating about the ferry platforms and in the long lines causing congestion in the islands many public restrooms. Furthermore, National Route 2, a major highway that runs through Hiroshima connecting it to the rest of Japan, has experienced epic levels of traffic to the area. The claim of over-tourism that many have brushed off until now, is indeed a problem for the island.

This new project is backed by a team composed of NTT-West Hiroshima Branch, the city of Hatsukaichi, The Miyajima Tourism Association, Uhuru, and the faculty at Hiroshima Shudo University. The project aims to make practical use of NTT's AI, IoT, and ICT technology to tackle the problem of overcrowding and tourism facing Miyajima. Already in Hiroshima the free public wifi service and the Shimanami Kaido Highway GPS applications are exchanging and collecting data, aiding various sub-sectors of the tourism industry. Even within Miyajima itself, efforts are already being made to utilize such technology, and the results are steadily pouring in.

Currently there are several cameras placed at Miyajima-Guchi and along National Route 2, collecting and gathering information to give up-to-date recommendations to visitors who are coming to Miyajima for things such as the state of various forms of public transportation and Park-and-Ride services. In addition, at certain participating parking lots around Miyajima-Guchi, the latest information for parking availability can also be viewed. Cameras have been placed at nine locations around the overcrowded island, mainly along the shopping paths and public restrooms. One major concern is noticeable congestion in women's restrooms, so sensors have been placed on the doors to tell when the door is open or closed, giving them the ability to relay availability to visitors.

All information for this project will be collected using optical lines or LoRaWAN (Low power, wide area telecommunications) networks. While using the edge cloud, only relevant information will be stored on the system's database, with personal or private information being properly discarded of before transmitting data to applications for the general public. Once safe and secure information has been collected and analyzed, tourists to the area can utilize it for their benefit.

Solving Problems with the Support of Local Aid, Not Just Technology

Currently NTT West already has such technology in use with their LINE app, which provides up to date information for tourists to Miyajima. It was previously thought that as long as the technology was in place, then solving the issue wouldn't be a problem. **"But that's just not the case," says business solutions devision chief, Katsuki Ishiga. "In the end, it's 'the people' that are most important."**

In this case, **"the people"** refer to everyone connected to the success of the project. From the people whose job it will be to install the LoRaWAN systems and traffic cameras, to the people who patrol the grounds, to most importantly the locals who live in the surrounding areas. It is the local residents who will help with the arrangement and adjustment of machines, as well as providing information that only they would know. **"Once cooperation from the local governing bodies, as well as the tourist associations has been granted, then this project can really get off the ground. Helping various areas solve the issues that plague them is this team's biggest aim,"** commented Ishiga. At an ICT meeting with people from all over, the question of how the team would go about solving the island's problems was brought up. In the end it was Hackason that stated, **"It has to be the shop keepers, our answers lie there."** Ishiga added with a smile that, **"ICT and IoT aren't just for tourism. They can contribute to society as a whole."**

As of now, many parking lots utilize sensors for vehicles entering and exiting the space. The newer sensors needed for this project can be easily installed using the systems already in place, which won't require any major changes by companies. However, the bigger picture is not just to have individual lots with individual systems, but to sync all parking spaces throughout Miyajima-Guchi, and create one cohesive unit to guide and survey cars. **"The future goal is to use the data from these companies to help businesses run smoother. For example, using information on which lots fill up the fastest and when, can lead to dynamic pricing strategies. Additionally, data from visitor trends might provide some companies with the option of only opening on the weekends. It is our hope that more locations opt for integrating these easy to use and install systems, bettering the region overall,"** to which Sakai agreed.

Using Collected Data in Time of Natural Disasters and Emergencies

Starting mid 2019, the cameras installed along National Route 2 have already started collecting various kinds of data. This data however, is not only limited to traffic information, but is also able to read license plates and search registry information. In addition to this, cameras installed on the island have the possibility to discern the gender and age of drivers. After the removal of any personal information, it is expected that this type of data can help in the case of natural disasters and emergencies. For example, the number of residents in a specific area, or needed supplies after a disaster can be sent via applications or onto electronic sign boards, aiding with evacuation efforts. The technology can also be used to warn foreign visitors, who would otherwise be unaware, of any dangerous weather conditions or accidents. The data collected from various project is field tests can, without a doubt, be used to help find new paths and roads in times of emergency.

Hand in Hand, Local Areas and Apps Lead the Way to Positive Field Tests in Hiroshima

The decision to use LINE as a means to spread information was an easy one. LINE already has a wide user base in Japan, and it would align with the project's hope of being able to reach more and more people. In true Japanese style, the team desired to use a mascot character to help with further promotions and sightseeing guidance. However, in Miyajima, no such mascot exists. So, the project requested the use of another town's well well known character, Momi-jii. Photos are provided by the city's local inn, Kinsuikan.

Currently, many automatic Q&A machines and GPS systems for local recommendations exist in places throughout the city. However, with this project, traffic info and crowd density of popular areas can also be researched, leading to smoother and overall better travel. While Miyajima acts as the first stage of this plan, the project is not only focused on the island itself, but the whole of Hiroshima prefecture and creating stress free travel for all. The project's team finished by saying, **"Our goal for integrating all this technology is to help liven up Miyajima, and Hiroshima as a whole. Development and field tests won't be easy, but you have to try, try, try."**

●Nippon Telegraph And Telephone West Corporation
①Katsuhiko Sakai ②Katsunori Ishiga