

Template for COMP3297C: IcyReward.

For the IcyReward project we can omit or combine various sections of the full Vision sample for the COS. This template reflects those omissions.

To use the template, replace everything shown between < > pairs. Adjust the page numbering in the Table of Contents page accordingly.

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# Vision Document

for

# IcyReward

Version 1.0

Prepared by Group P

(Leung Wai Kit, Jiang Zhejun, LI Haochen, Fan Zheyu, Li Yin Tsun)

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## Revision History

| Name         | Date    | Reason For Changes | Version |
|--------------|---------|--------------------|---------|
| Group P      | 28/2/24 | Initial draft      | 1.0     |
| Jiang Zhejun | 22/4/24 | Added Release 2    | 2.0     |

# 1. Business Requirements

## 1.1. Business Opportunity

A fun and interactive system is essential for efficiently and accurately tracking attractions visited by guests at IcyWorld, facilitating adjustments by the Park Management team to consistently improve the overall guest experience. Current methods of collecting guest feedback, such as surveys, are both time-consuming and inaccurate. Implementing such a system would not only save labor by eliminating manual tracking methods but also improve the accuracy of data on guest behavior. This enables Park Management to make data-driven decisions and improve operational efficiency. Through this seamless and interactive system, IcyWorld's strategic directions can better align with visitor trends, thereby enhancing guest satisfaction and driving revenue growth at the theme park. Additionally, a future extension to the system enabling tracking of visitors at external local parks would provide IcyWorld with a broader view and provide the potential to attract visitors who have visited other parks through volume inter-park reward agreements.

## 1.2. Vision Statement

For the park management team at IcyWorld tasked with analyzing customer behavior, the IcyReward system serves as an integrated system that continuously tracks user attractions data on a daily basis. It offers clear diagram displays of data for selected periods of time. Park visitors benefit from more efficient operational services and a fun experience of earning reward points and redeeming gifts.

By eliminating the need for traditional survey methods to collect user attraction data, the management team can utilize the IcyReward system to gather data more efficiently and with higher accuracy, which saves both time and labor while providing visualized data for instant analysis.

## 1.3. Business Assumptions and Dependencies

AS-1: Sufficient NFC terminals will be available for installation at the entrance or exit of every attraction in IcyWorld.

AS-2: Sufficient NFC bands (IcyBands) will be prepared for delivery at the main entrance to accommodate the large volume of customers. They shall be collected at the exit of IcyWorld.

AS-3: The redeem shop is equipped with enough display devices, such as screens, to showcase the redemption price of every available item. These displayed prices are subject to settings and changes within the IcyReward System.

DE-1: If an attraction has its own NFC entrance or other ticket-constrained entrance, the IcyReward system must be able to interface with it.

DE-2: If there is a gift shop system in place, the IcyReward system must be able to interface with it.

DE-3: If there is a management analyzing system in place, the IcyReward system may be able to interface with it.

## **2. Scope and Limitations**

### **2.1. Major Features**

FE-1: Read NFC bands with unique IDs for each customer at any attraction and automatically add points to the user's total accordingly.

FE-2: Summarize and display Reward Points earned for the day.

FE-3: Display all available gifts in stock that can be redeemed using Reward Points.

FE-4: Confirm the purchase, offering options to add, remove and adjust the quantity of gifts redeemed, and indicate if points are insufficient after calculating the total points needed.

FE-5: Upon successful purchase, points will be deducted accordingly, and gifts will be dispensed to the customer.

FE-6: Record time of customers' visits at each attraction using the timestamp feature.

FE-7: Restrict visitors from scanning the NFC band again within a 5-minute interval to prevent abuse of the Reward Points system.

FE-8: Display the collected data in charts based on the selected period.

FE-9: Add, remove and adjust the price (in terms of Reward Points) for the gifts available.

FE-10: Update the points and visited facilities for each band ID at the end of each day.

FE-11: Review and report on the utilization of NFC at the gift shop and trends in reward redemption.

FE-12: Allow different tiers of IcyBands (VIP and non-VIP). A normal IcyBand can be updated by using 6 Reward Points at kiosk.

FE-13: While normal IcyBand keeps the Reward Points only within the valid day, VIP IcyBand has no such limit.

FE-14: Record email addresses for VIP IcyBand users.

FE-15: Can use complex reward points policy to give non-constant Reward Points to each visitor at each time of visit, using the information including past visits to IcyWorld and past visits to this attraction on the same day.



Figure 1. Partial feature tree for the IcyReward

## 2.2. Limitations and Exclusions

LI-1: We have yet to address the storage of data regarding the most popular gifts among customers.

LI-2: Gifts can only be redeemed on the day of the visit.

LI-3: Gifts can only be redeemed at the kiosk located at the IcyWorld Official Gift Shop.

### 3. Stakeholders

#### 3.1. Stakeholder Profiles

| Stakeholder   | Major Values   | Major Interests   |
|---|--|---|
| End Users   | Personalized, meaningful rewards for loyalty and engagement  | Easy redemption processes; adds fun to the visit; a wide range of rewards; a seamless user experience   |
| Participating Businesses (companies that produce products for the IcyWorld gift shop) | Increased customer loyalty and increase in sales   | Marketing effect. Potential to increase sales of related products   |
| IcyReward Management and Staff  | Enhancing customer experience, building a sustainable, profitable business pattern; use the data as reference to further improve the services. | Operational efficiency; high user engagement rates; data accuracy and collecting efficiency; gain higher tourist attraction; gain higher tourist return rate. |
| Regulatory Bodies   | Promoting solutions with no risk of privacy issues (as the bands used are anonymous); Adhering to consumer and data protection standards       | Compliance and the ethical operation  |
| Investors (of IcyWorld)   | Financial return on their investment; Growth potential of IcyReward  | Strategic decisions that maximize profitability and market share  |

### 4. Delivery

#### 4.1. Product Roadmap

| Feature  | Release 1 (April 3, 2024)  | Release 2 (April 24, 2024) |
|--|--|----------------------------|
| FE-1, Accumulate Points                                | merry-go-round, roller coaster, riverboat and theatre  | Mini-Train                 |
| FE-2, Display Total Reward Points Earned               | Shown at Kiosk   |                            |
| FE-3, Display All Gifts                                | Fully implemented  |                            |
| FE-4, Edit and Make Gift Order                         | Fully implemented  |                            |
| FE-5, Deduct Reward Points at Purchase                 | Fully implemented  |                            |
| FE-6, Record Visitors' Visit Records                   | Fully implemented  |                            |
| FE-7, Restrict Repeated Tap within small time interval | Not implemented  | Not implemented            |
| FE-8, Display Visitors' Visit Record Data Analysis     | Can select day<br>To be viewed at staff's system<br>Can view distribution of visits over a day at an attraction<br>Can view total visits and repeat visits |                            |
| FE-9, Modify Gifts                                     | Fully implemented  |                            |
| FE-10, Modify Attractions                              | Fully implemented  |                            |

|  |                 |                   |
|--|-----------------|-------------------|
| FE-11, Data for Gift Redemption                                | Not implemented | Not implemented   |
| FE-12, Update to VIP   | Not implemented | Fully implemented |
| FE-13, Validity of Reward Points for VIP                       | Not implemented | Fully implemented |
| FE-14, Email for VIP   | Not implemented | Fully implemented |
| FE-15, Reward Point Policies according to Past Visitor Records | Not implemented | Fully implemented |

## 4.2. Release Plan

### Release 1:

| Sprint 1 (March 20)   | Sprint 2 (April 3)  |
|---|---|
| <b>Gift Redeem</b><br>(All Scenarios, including NFC recognition, checking point balance, basic successful redeem, checking remaining point balance, and checking remaining gifts in the kiosk)<br><b>Gift Catalog Management</b><br>(Edit price and stock for each gift, add or remove gift item)<br><b>Logging Visits</b><br>(Records visits to attractions) | <b>Logging Visits</b><br>(All remaining features, including recording timestamp of visits, avoids duplicate taps at a same site, empties the remaining points at the end of day)<br><b>Visitor Data Analysis</b><br>(All features, including authenticating staff, presenting tables and charts to the staff)<br><b>Gift Catalog Management</b><br>(All features, including authenticating staff, changing gift catalogs) |

### Release 2:

| Sprint 3 (April 24)   |
|---|
| <b>VIP IcyBand</b><br>(update to VIP with 6 Reward Points, setting up email, can only update once, checking reward point balance)<br><b>Dynamic Reward Points</b><br>(Mini Train and ease of using the same reward point scheme for future attractions)<br><b>Different Reward Point Validity</b><br>(VIP IcyBands' Reward Points validity is not limited to the particular day of visit) |