
Shoreline Aquatics Center Self-Serving Kiosk

A project detailing the implementation and operation of a self-serving kiosk for rentals at Shoreline Lake.

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*Prepared by:
Nicholas Perematko
Melissa Saucedo
Lana Sarraj
Fatima Soria
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Executive Summary

1.1 Conclusion

In implementing Shoreline Aquatics with a self check-out kiosk, customers can then immediately view current availability in addition to receiving step-by-step instructions on a thermal receipt, text, and email that provide immediate electronic proof of purchase. The Mercury EK Series 2400 will assist customers on rental purchases so this will grant more staff members additive attentiveness to customers' inquiries in efforts to furnish better awareness on safety, efficient scheduled time use as well as increasing revenue by almost \$60,000 the first year.

1.2 Business Opportunity

The business opportunity surrounds the efficiency of this system, from how many people are necessary to make this process work, to the time it takes to get onto the boat from purchase to sitting down on the boat. Installing a self-serve booth with consistent and reliable directions, including a map directing customers to the various rental products will aid in the efficiency of business by removing the inconsistent human element. Not only will it speed up and automate instructions, the amount of money saved in labor will allow this to be an even more profitable business.

1.3 Business Environment

Shoreline Aquatics Center, located in Mountain View, California. Established in 2000, Shoreline Lake Boathouse and American Bistro is located in a wildlife sanctuary and attracts a varied group of people, from local hi-tech workers, families with children, hikers, etc.

The boathouse offers a number of accessible water sports to the public, with pedalboats fit for a family of four, to kayaking to canoeing for those looking for a light exercise, to sailboats looking to practice their sport. All equipment is available for rental, PFDs (lifejackets) are included and mandatory. In addition to watersports, there are also bikes, single and tandem, available for rental use around the surrounding nature reserve.

1.4 Solutions

Essentially what we need to do would be to improve the receipt verification process when it comes to renting boats as people would be in the wrong line for another boat, losing the receipts before verification. One way to do this would be to transfer to a fully electronic system so when purchases from customers build up the company will receive it on their end rather than verifying the receipt with the customer. Transferring to a new system will take months to adapt to as well as more staff training to ensure quality through this solution.

Instead of receipts another solution would be a qr code system indicating both proof of purchase and identifying which package was bought. This way staff members could quickly scan and identify rather than taking time reading the receipts.

Analysis

2.1 Cost

When it comes to the cost of this project, a number of factors were considered. As a basis, we decided to keep track of the costs yearly. This means we take a projection of the expenses saved on an employee and scale it to a comparable time frame. From there, we consider three primary expenses: Installation, Yearly Maintenance, and the Operating System. Additional costs come from upgrades such as scanners, premium software, and so on. This is compared to the expenses spent on an employee, frequently the lower priced kiosks are paid off quicker than more expensive options, and three of the four options are paid off in the first year. The options that take longer to see returns are suboptimal and should be avoided as a business should seek to profit on investments sooner rather than later.

2.2 Schedule

First we must all meet with the design team engineer and staff members and discuss both possibilities of outcome if we are to keep the same system or change it to an automated system depending on the logistics. After the Operations team crunches the numbers and evaluates the budget, After the cost benefit analysis in the case where an automated system is a better financial decision, the operation team meets with the team leads and informs them of the decision to let go of the current employees who manually verify receipts, after the kiosk system is installed. Once the engineers finish installing the self-serve kiosk, a mass text goes out to regular customers who signed up for promotion updates letting them know the changes. Signs are also posted letting customers know the change of system, and staff is trained to read apt to the new system and lead customers through the kiosk process.

2.3 Best Solution

In an attempt to efficiently reduce loss of rental slots, wage cost, in addition to increasing revenue the best solution is by installing two Mercury EK Series 2400 self checkout kiosks that will properly provide the dock staff members with proper verification more rapidly. This particular kiosk will be more profitable since it will allow more time for additional rental reservations and reduce receipt misplacement by providing immediate proof of purchase with a self-service payment device while also allowing the opportunity to decrease labor cost for two employees.

2.4 Interest to Students

There was an interest in finding better service at a place of employment for one of the students. There is shared frustration by both the employees and the customers when there are huge crowds. Frustrated customers who often lose the paper receipts while on the boat or confused where to get lifejackets before heading to the docks. It is in everyone's best interest to find a more automated, direct, and speedy way of conducting the rentals at the boathouse.

2.5 Work

In terms of work, each group member did their fair share of the load as per the division of work in Section 3.6. Research was done by everyone for their respective sections and sources were shared among everyone for better understanding of the subject at hand. What one member is unable to do, the other three filled that gap, but the greatest part to emphasize is the collective understanding demonstrated in every section. We worked together on this project so that the final product appears coherent like it was done by one collective mind.

Comprehensive Solution

After much review most of the proposed kiosks added profitable value to the company from electronic payments, to immediate rental availability, and even possible outdoor kiosks located near the docks. These solutions are in efforts to provide a faster and safer experience for customers while also allowing the opportunity to reduce labor costs.

3.1 Problem

At the boat rental house in Shoreline Aquatics, the biggest issue is the matter of receipts as they are the proof of purchase, as they are just pieces of paper, people would lose them or shove them in a pocket where they cannot be easily found. This slows down the order immensely and creates the biggest build up of people all trying to locate the receipts as proof of rental.

3.2 Business Background

In efforts to increase productivity and safety measures a self-serve checkout would accelerate the docking process and decrease customer discrepancy in achieving enhanced revenue by reducing labor cost and making room for more reservations. By doing so the proposed kiosks are the DISPLAYS2GO that provide immediate check in only indoors, the ODK 49 Wall mount that provides check in service outdoors for a closer vicinity to the docks, a Mercury EK Series 2400 that provides indoor check-in with electronic payment to allows customers to purchase available rentals on the spot, and the Advanced Multipurpose Kiosk that provides indoor check in, electronic payment, and an NFC reader to allow data exchange from smartphones.

3.3 Alternate Solutions

Instead of printing physical receipts we will also give the option of text or emailed receipts so customers could access it online rather than on paper. Assuming that not everyone has the best service, paper receipts should also be an option alongside the other electronic options.

3.4 Cost-Benefit Analysis

After reviewing the cost-benefit analysis it concluded that depending on the particular kiosk it can replace up to 1-2 employees minimum. The Mercury EK Series 2400 provides the most important features such as electronic payment and self-serve check in that can allow Shoreline Aquatics to reduce up to two employee labor costs while also profiting approximately \$60,850 in the first year.

3.5 The SDLC

Before implementing the idea of automating the rental services provided at Shoreline Aquatics a meeting by all board members and staffed leaders must be held. The decision to be made will be one affecting jobs and the environment therefore engineers must meet with the operations team in this process. From here the decision must be made, to automate or not? If the decision to automate this process is taken again the operations team must meet with team leads to inform them of the consequences of this decision. Ultimately this decision is for the better of the business and although jobs will be lost the company will be moving forward at this point.

The process of installing this kiosk is included in the service fees and will be followed by the subprocess of training team leads on how to operate the kiosk. This step is crucial as there will be limited personnel present and at all times they must know how to properly guide through the prompts on kiosk. Operations team on the floor again must meet with team leads to help understand how the new process will work as well as putting new signage directing customers to obtain lifejackets before heading to the dock with them on. The way in which the kiosk works would start off with the customer approaching and tapping anywhere.

Hypothetically for the model there's two boats named A and B but there's many different options realistically. The customer is instructed to pick which boat is best suitable depending on their needs and desires. After picking the boat they would like to rent the kiosk will ask the customer if they would like to pay in cash or card. After choosing their preferred payment a QR code will be given to them that both them and staff members can scan in order to retrieve purchase information. After verification the staff will send out the boat.

3.6 Division of work

The division of work is spread among the four group members. Each of the group members are given sections that relate to one another, for example, someone making the Cost-Benefit Analysis would be more familiar with the cost and best solution. With this in mind, the members would be able to do the best work they can while not having to detract from details another member or members might specialize in. This doesn't, in fact, mean that the group members are working separately, rather, together like pieces of a puzzle. Some sections require more work than others, namely sections 3.4 and 3.5, and as such they have been granted to two members rather than one like in all the other sections. Everyone is in charge of proofreading. See Figure 3.6 in Section 4 for details.

Section
4

Tables and Graphs

Figure 3.2
Business Background, Expenses:

 Shoreline Staff Schedule Breakdown.xlsx

Figure 3.4
The Cost-Benefit Analysis:

DISPLAYS2GO Kiosk		Mercury EK Series 2400		ODK 49 Wall Mount		Advanced Multipurpose Kiosk	
Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit
Operating System: 3* \$1,199= \$3,596	Years labor cost for 1 employee: 2*\$17.10 wage* 360 hours= \$12,312	Operating System: 3* \$2,370= \$7,110	Years labor cost for 2 employees: 2*\$17.10 wage* 720 hours= \$70,189	Operating System: \$11,805	Years labor cost for 1 employee: 2*\$17.10 wage* 360 hours= \$12,312	Operating System: 2* \$6,000= \$12,000	Years labor cost for 2 employees: 2*\$17.10 wage* 720 hours= \$70,189
Installation: 3* \$736= \$2,208		Installation: 3* \$743= \$2,229		Additional scanner upgrade: 3*\$539= \$1,617		Monthly Premium Software: \$154/month* 12 = \$1,848	
Yearly maintenance: 3*200= \$600		Yearly maintenance: 3*200= \$600		Installation: 3* \$1,010= \$3,030		Installation/ Maintenance included w/ Premium	
Total=\$6,404	Total= \$12,312	Total= \$9,339	Total= \$70,189	Total=\$17,052	Total= \$12,312	Total= \$13,848	Total=\$70,189
End of the 1st year profit: \$5,908		End of the 1st year profit: \$60,850		End of the 1st year loss: \$54,740		End of the 1st year profit: \$56,341	

Figure 3.5

The SDLC:



Figure 3.6

Division of Work:

☰ CIS 3 Division of Work

<u>Nick</u>	<u>Melissa</u>	<u>Lana</u>	<u>Fatima</u>
3.6, 2.5	3.2	3.3	3.1
3.4	3.4	3.5	3.5
2.1	2.3	2.2	2.4
1.3	1.1	1.4	1.2
Proofread	Proofread	Proofread	Proofread
Cover page	Powerpoint	Powerpoint	Powerpoint

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