

# Project Description

## The Opportunity

The key to a high technology industry in Hawaii is education, and it is encouraging to see that the Information and Computer Science (ICS) department now has the highest departmental enrollment in degree programs at the University of Hawaii (UH). However, without entrepreneurs, there will be no businesses, and our knowledgeable ICS graduates will continue to seek mainland careers, where more jobs and better salaries are available.

This semester I started working on a project called VCommerce (Virtual Commerce), which is a business simulation game that enables students at UH to practice many important aspects of creating eCommerce businesses here in Hawaii.

VCommerce is unlike any other business simulation game because it has been designed to be an integrated part of a class, and this semester we are using the application in ICS 691 (Internet Entrepreneurship). The class, with more than fifty graduate students, has been divided into seventeen groups, and each group has formed a VCommerce company. Each company is now going to create a VCommerce web-site, which will resemble a real-world eCommerce site. Their businesses will be based on independent ideas, so part of the course will be to write a business plan. We believe that requiring the students to practice business innovation is a significant quality of VCommerce, because identifying business opportunities is an important aspect of entrepreneurship. In most existing simulation games, students do not acquire this practice because you are required to start and run a business that sells predefined product.

The VCommerce simulation itself is also a new and unique concept. We are going to use real-world people as consumers as opposed to calculating company revenues based on some function. This will make revenues unpredictable and complex just as they are in the real world. In ICS 691 we have chosen the Hawaiian college-age population as our consumer domain. Although this does limit the type of businesses the entrepreneur students can create, the result has turned out to be very exciting. There are several companies that have similar business plans, and we expect the competition to be a very rewarding experience, since most real-world companies face that very same problem. Competition will motivate the students to make their web-sites more appealing to the consumers. Therefore, at the end of this semester it is very likely that there are several very advanced VCommerce sites that can be ported directly to a real eCommerce business. This will not only benefit the participating entrepreneur students, but also Hawaii's high technology industry and the target market.

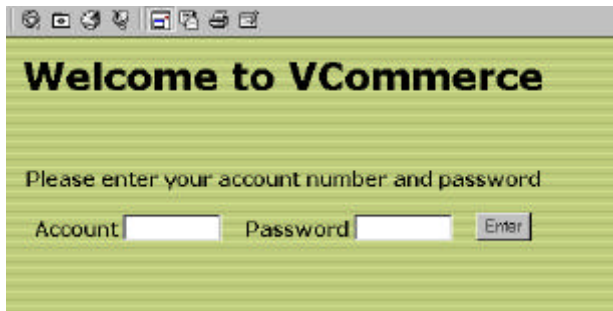
Student interest in ICS 691 has been overwhelming. Where graduate classes typically have less than twenty students enrolled, ICS 691 now have more than fifty students enrolled. The level of creativity, optimism and professional work that the class has shown thus far is very impressive. If we encourage their optimism and continue to make use of VCommerce to practice entrepreneurship, Hawaii's high technology will soon benefit from the results.

An additional advantage to the class is its interdisciplinary profile. The students' background is a balanced mix of computer science, business, management and information science, and engineering. Each company group has been formed to take advantage of this interdisciplinary profile, so that computer science and engineering students work with business students to practice building Internet businesses. This could be a rewarding recipe, which also has the potential to benefit Hawaii's high technology industry.

## State of the System

VCommerce is an Active Server Pages (ASP) application that runs on the Internet. The main component is the VCommerce Simulation Engine (VCSE), which is capable of storing and retrieving all information about the business environment such as company profiles, user accounts, etc. The data is stored in an underlying Access database. The VCSE also monitors the VCommerce sites. Page hits and purchase transactions data are stored for each site, and will be used to evaluate company performance. This semester we are going to run the simulation three times, and after each round the stored data will be used to analyze and evaluate company performance.

The current version has the minimum features needed to run the simulation, and they are described below.



## Login Mechanism

All users are required to log in. There are three types of users: entrepreneurs, consumers and guests.

Entrepreneurs and guests can log in to browse VCommerce, but they are not allowed to make purchases.

When consumers log in they will have to complete four steps: Entrance Questionnaire, Shopping Period, Stock Option Selection and Exit Questionnaire.

**Entrance Questionnaire**

Welcome, Mette Moffett, to VCommerce. We appreciate your interest in participating as a consumer, and we hope you will have fun.

There are four steps you need to complete:

- 1) Complete the entrance questionnaire on this page.
- 2) Spend some or all of your (virtual) money at VCommerce web-sites.
- 3) Pick 100 stocks from VCommerce companies.
- 4) Complete an exit questionnaire.

Disclaimer: The data that we gather about you will be used exclusively for VCommerce teaching, research and development, and will not be distributed to any other sources.

**Your Age:** Under 15

**Sex:** Female

**Marital Status:** Single

**Highest Education Level Completed:** High School

**Living Situation:** With parents

**Income Level:** Under \$20,000

**Time on the Internet:** Under 2 Hours/Week

**Primary Internet access:** Home

**At least 5 hours a week, I:**

- ☐ Surf
- ☐ Paddle
- ☐ Go Out
- ☐ Watch TV
- ☐ Play Games
- ☐ Do Sports
- ☐ Drive My Car
- ☐ Go Shopping
- ☐ Read Newspapers or Magazines
- ☐ Listen To Music
- ☐ Watch Movies
- ☐ Hang out with friends

**When buying electronic equipment, I prefer:** Good Quality

**When buying clothes for myself, I prefer:** Good Quality

**When choosing a restaurant to eat at, I prefer:** Tasty Food

## Consumer Information Frame

The left frame contains important information for the consumer, such as account balance and the current step in the consumer cycle.

The company banners, which are links to VCommerce web-sites, are also present.

The consumer frame appears at all times when a consumer is logged in.

## Entrance Questionnaire

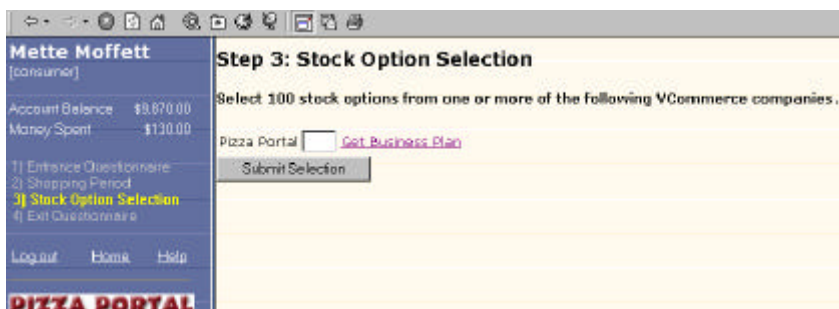
The entrance questionnaire will ask the consumer to submit some basic demographic information, which will be used for evaluation purposes.



## Shopping Period

During the shopping period the consumer is able to browse the VCommerce sites, and purchase the goods and services offered.

When a purchase has been submitted the consumer's account and the company's account is adjusted, and the transaction is stored.



## Stock Option Selection

This step allows the consumer to select 100 stocks from one or more companies that he/she believes to be the most promising.

This is a way of measuring the consumers' opinion about the sites.

The final consumer step is the Exit Questionnaire, which will be dynamically generated based on the consumer's transactions. The questions will relate to the amount of money spent, the companies visited, the stock option selection and the items purchased. This data will be used to evaluate consumer behavior.

## Goals for the Project

VCommerce has the potential of commercial success. We expect that there will be a national interest in the product if made available. Thus, the goal for continuing this project is to make it more sophisticated and package it, so that it can be installed like a regular software application on a server.

What needs to be done is to create online management of the system, so that the application does not require an ASP programmer, and so that the instructor is not required to do manual work on the database or in the ASP files. This can all be done with additional ASP programming.

# How VCommerce Can Benefit Hawaii

The State Capital recently hosted a "Technology Industry Day", where representatives from Hawaii's high technology industries were given the opportunity to talk about the future of their industry in Hawaii. Some of the conclusions from the meeting were that education is key to high-tech industry in a state, and that Hawaii's industry currently is in the infant stage, but on the verge of exponential growth.

Hawaii suffers in many ways from its remote location, and until recently the only major industries that could survive here were tourism and the military. With the arrival of high technology that has changed. Because we are able to exchange data over great distances at very high speed, location is no longer important to most high-tech businesses. Thus, Hawaii has very good chance of success in the high-tech industry, and if we work hard at it, we have the potential to become a "Silicon Paradise". If competitive jobs are here, it will without doubt not be a problem attracting knowledgeable people to our beautiful islands.

The VCommerce project is a step in the direction of realizing the "Silicon Paradise" dream. There are three separate aspects of VCommerce that will contribute to the development of Hawaii's high technology industry, and I have described each below.

VCommerce gives students at the University of Hawaii an opportunity to practice Internet entrepreneurship. They will learn the process of starting up an Internet business here in Hawaii, and become comfortable with the procedure through experience. This will encourage students to start up their own small businesses here in Hawaii, which otherwise may seem too foreign or intimidating for them.

Part of the VCommerce experience is to develop a web-site with a professional appearance, and the use of real people as consumers will encourage the students to make the sites as appealing as possible. Therefore, when a VCommerce class is completed, some students will own some very sophisticated sites, and they may choose to move them to a commercial web-server, and turn them into real eCommerce businesses. This aspect of VCommerce can benefit the high technology industry directly, since there may be small business start-ups at the end of each class.

The final, but most important aspect of VCommerce, is the fact that the application is a potential commercial success. It is very likely that universities nationwide, and worldwide, are going to be interested in VCommerce. If I get the opportunity to develop VCommerce further to a very sophisticated simulation game, and either package it as an easy-to-install application or host it on my company's web-server, initial market research tells me that VCommerce is capable of generating income of at least \$1,000,000. This would obviously benefit the high technology industry by the revenues it will generate, but there would be also be new local employment opportunities, and success means publicity, which could attract additional high technology business to Hawaii.