# The Interactive Vending Machine: A Currency Interaction Simulation

Multiple Handicaps

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## INTRODUCTION

The Interactive Vending Machine is a device designed to help handicapped people learn how to use currency. The device is a simple to use machine, see Figure 1, that simulates a vending machine experience. The caretakers can place pictures of items inside the box and program the prices under the items. Then, the user is able to purchase specific items. The user has a help button to help them if they are unable to determine out how to pay for an item.

Figure 1: The Interactive Vending Machine

## SUMMARY OF IMPACT

The design of this device enables people with poor money skills to learn the value of money. Since the products are interchangeable, the staff members can customize the product selection to meet needs,

such as all hygienic products or treats. Staff members can also put weekly sale items into the machine to help with shopping trips.

## TECHNICAL DESCRIPTION

The Interactive Vending Machine is made up of a single master, multiple slave network that is run using 8-bit microcontrollers. All slave microcontrollers communicate with the master using the Serial Peripheral Interface Bus or SPI. Each slave microcontroller has its own duty, such as controlling seven segment LEDs, playing songs, and scanning key matrices. The master cycles though the slave microcontrollers sending and receiving information. A specific example of a serial controlled subsystem is the rear-programming panel as seen in Figure 2. This panel consists of a 16 key matrix for user input. The case of the machine is made out of wood, and coated with acrylic.

Figure 2: The rear side of the Interactive Vending Machine.

The cost of the interactive vending machine was approximately $750.