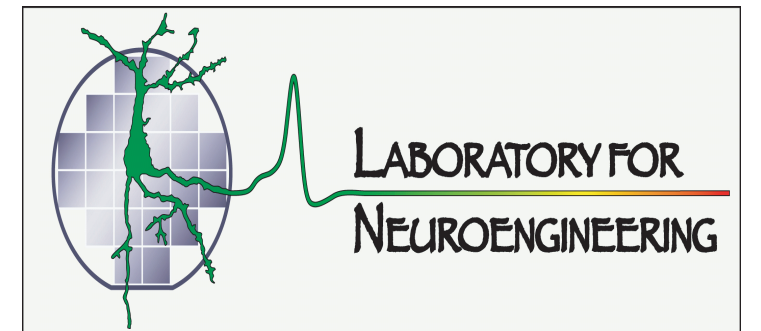




Wireless Schedule Keeper using Ibuttons

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Introduction

We've all wanted an automated way of writing a schedule and organizing our time as a means of remembering assignments, due dates, tests, projects, and events. The Schedule Keeper 3000 is just that.

Using Ibuttons and conveniently located dock stations, data is received from different professors and immediately organized into a calendar, with all assignments, due dates, tests, and projects entered at the correct days and times. The student never has to pick up a pen or pencil and has a schedule just at the touch of an Ibutton.



Figure 1: Ibutton a versatile memory chip

Background

The schedule keeper is implemented using Ibuttons and microcontrollers. The Ibutton is a memory chip enclosed in a 16 mm stainless steel casing as seen in Fig. 1. They are easily interfaced by simple microcontrollers.

Microcontrollers are an efficient and cost effective way to input and output data to and from users by the way of Ibutton technology. They are hidden inside a surprising number of products these days. If your microwave oven has an LCD screen and a keypad, it contains a microcontroller. Basically, any product or device that interacts with its user has a microcontroller buried inside of it. It is similar to a computer, embedded inside a device so that it can control the features or actions of the product.

Current Work

The basic working of the system:

- 1.) Stationary Microcontrollers will be placed in central locations in each building as a means of storing data input by professors.
- 2.) Students will each have an Ibutton that will receive information (basic syllabus) from the microcontroller and store it in a calendar with the correct day, time, and location inside their Ibutton.

Ibuttons are used extensively in the industry. Some of the uses are listed below.

- Parking lot payment systems
- Laser Tag use iButton Touch
- Rugged Time and Attendance Application
- Vehicle Black Box Tracks Your Every Move
- City Bus transport systems for payment and credit

We interface the Ibutton via the serial port of the computer as shown in Figure 2.

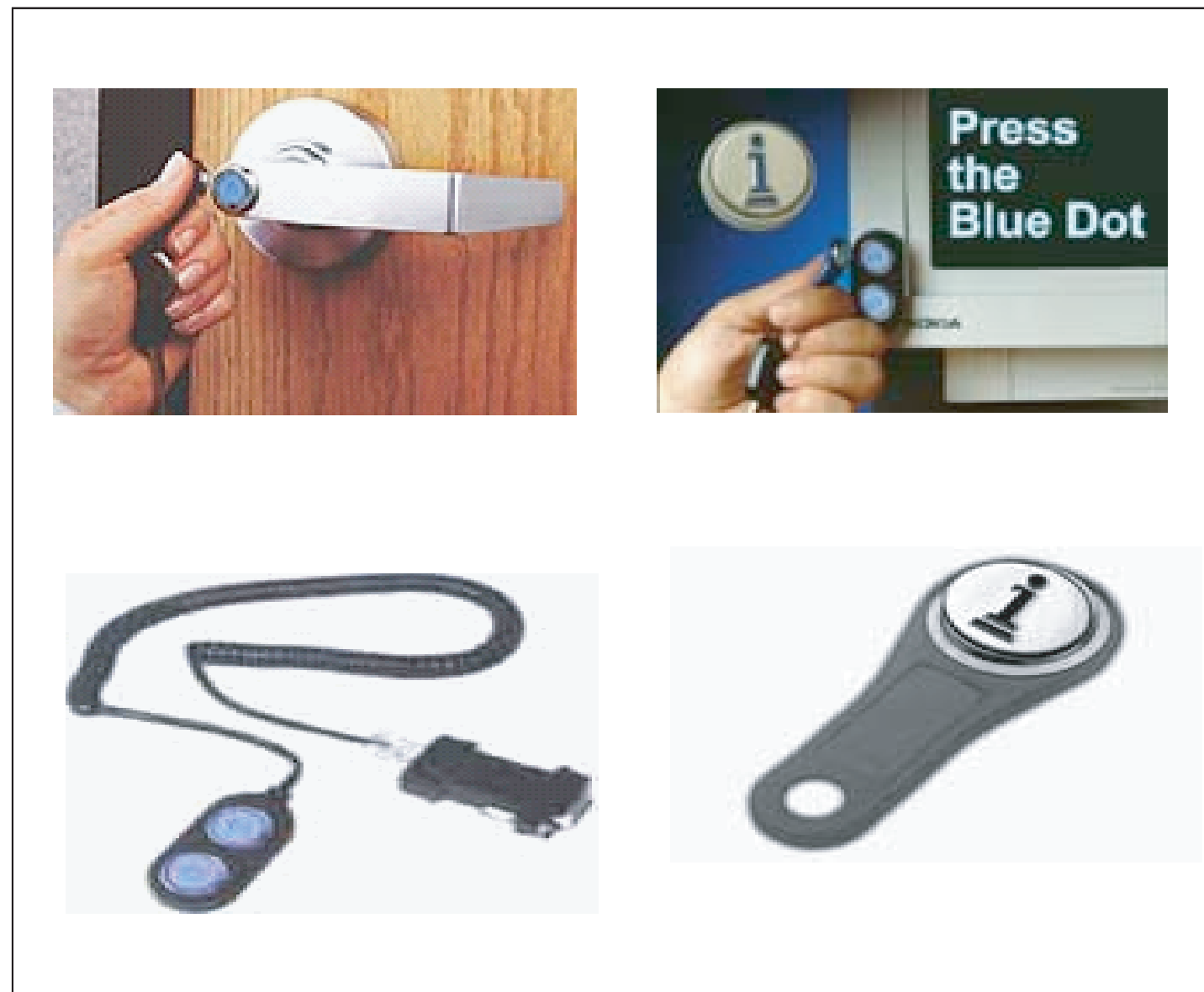


Figure 2: Ibutton Technology.

Methods

Microcontrollers must be programmed in order to read, receive and store schedule information from the professor's Ibutton, which was programmed from their personal computer. It also needs to send the designated information to the student's Ibutton.

- 1.) Assembly programming will be used to program microcontroller.
- 2.) Software will be developed in order to receive and send data to the Ibutton.
- 3.) Java Programming will be used to program Ibuttons.

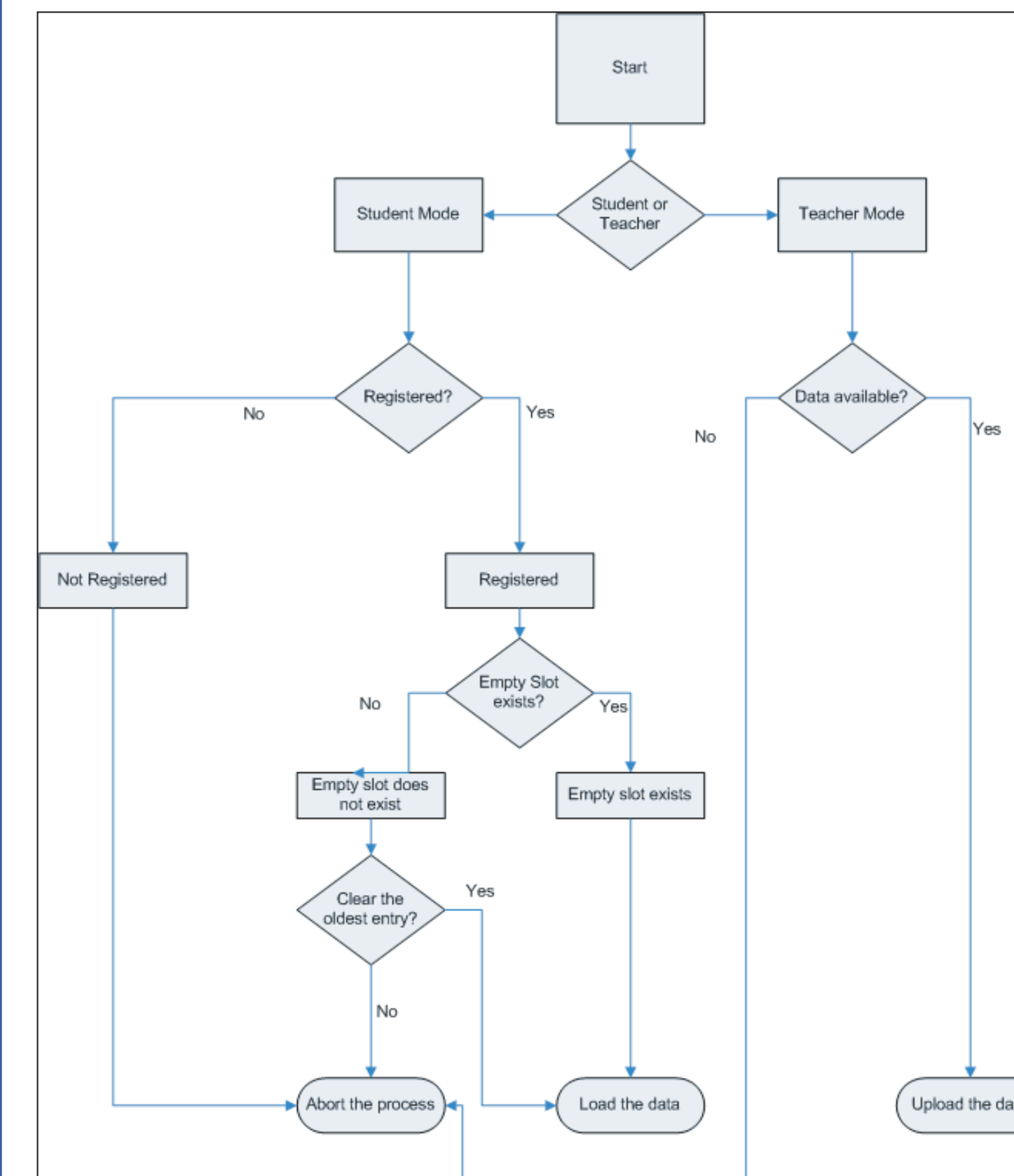


Figure 3: Assembly Control Flow Chart.

Conclusions

Through our research and experiments we have concluded that this project is very feasible through programming in assembly and java. It is also cost efficient ranging from \$2.23 to \$53 per Ibutton and a simple reader/writer device costs only \$34. Microcontrollers and Ibuttons are also very flexible being that many specific tasks can be implemented using the technology.

Future Work

Possible Add-ons to Schedule Keeper

- 1.) Signaling of students as times and dates approach.
 - Computer reminder
 - Instant text message to cell phone
- 2.) Functionality that allows student to check schedule away from personal computer, such as in central location like Student Center.
- 3.) Organizational Event scheduling in addition to class assignment scheduling.

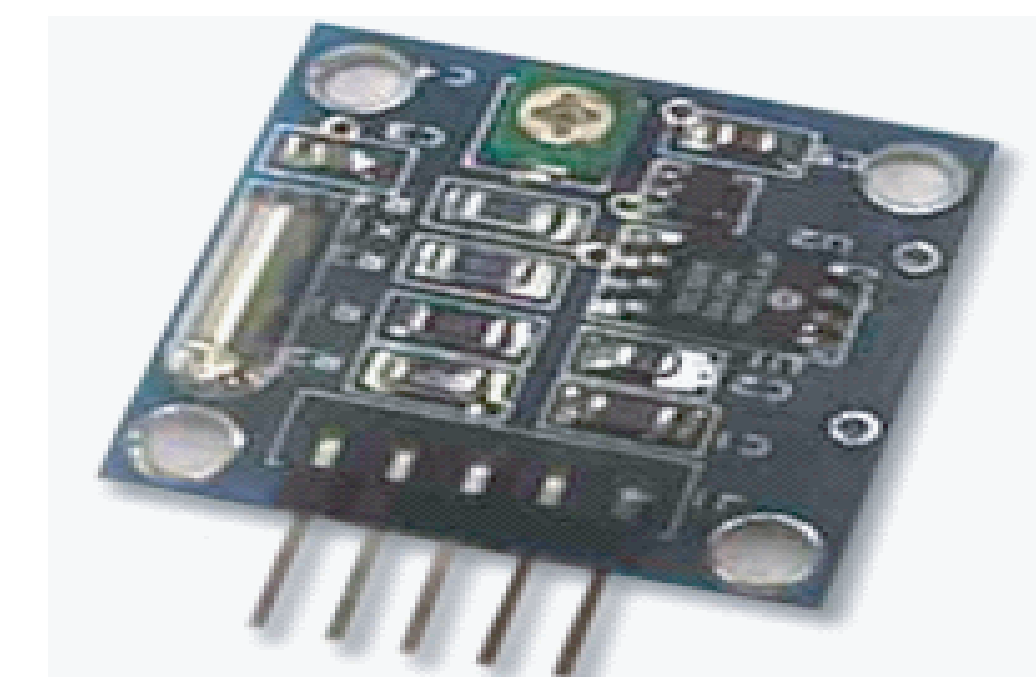


Figure 4: Microcontroller.