



SMART HANDSHAKE BRACELET

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ABSTRACT

The Smart Handshake Band is a wearable bracelet-like device that exchanges information about its users and their relationships. This exchange happens during the common gesture of the handshake, which is detected by the device. As such, In this paper, we discuss the Smart Handshake Band technology and feedback. We designed and created a wireless contact information exchanger that would do so upon a handshake. The device has a user interface, comprising of two switches and two LEDs to warn the user against low battery and low memory.

This device uses an RF detector to detect a handshake, a Bluetooth module to send and/or receive business cards, a microcontroller to coordinate this sequence of actions, an external memory to store the received business cards. However, to make the bracelets send data without errors, one had to be set as Master and the other Slave Received business cards can be uploaded to a personal computer or even to a phone. Although our design worked, there are still improvements that can be made by eliminating the master/slave switch, developing a better user interface adding a contact picture in the business card and stepping down power consumption when not in use.

Keywords:- *Arduino Pro Mini, Nippo Battery, RN-42 Bluetooth module, RFID, Battery Indicator, Memory*

I. INTRODUCTION

In the past few years, there has been an explosion of online social networking. Web sites like Facebook and Orkut allow people to build relationships in an active social cyberspace. This development has been paralleled by the increasing attention received by wearable technologies in ubiquitous computing research. Our research is concerned with the convergence of these two domains. We are interested in exploring the social nuances and affordances provided by wearable social networking. We present Smart Handshake Band a technology-enhanced bracelet that can store, display and exchange information about its users and their relationships. Smart Handshake Band aims to explore the potential of wearable devices to augment real and virtual world social interaction.

1.1 COMPONENT LIST

Arduino Pro Mini

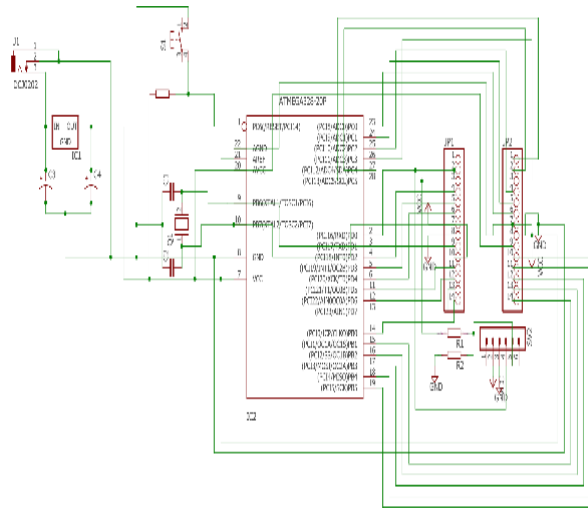
Nippo Battery

RN-42 Bluetooth module

RFID

Battery Indicator

Memory



ARDUINO PRO MINI

The microcontroller controls all the components in the circuit. The microcontroller interacts with every component in our device except the low battery indicator circuit. We chose to use an Arduino microcontroller because of its large open source software environment. After initial testing and verification of the components we moved on to using the 3.3V Arduino Pro Mini microcontroller.

RN-42 BLUETOOTH MODULE

The Bluetooth module on our device is used for wireless data transfer upon a handshake. Our device uses an RN-42 Bluetooth module on a breakout board from Spark fun Electronics.

RFID

Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information.

Memory

We used the 24LC256 EEPROM for storing received business card data. This was necessary to incorporate into our project because the microcontroller on-board memory was too small to meet our storage needs.

1.1.5 LOW BATTERY INDICATOR

we decided that when the voltage over each battery hit approximately 2.4V there would be 15% charge remaining.

1.1.6 NIPPO BATTERY

The design of the power supply is simply two CR2477 button cell batteries in series. These are 3V batteries rated at 1000mAh , so the output of the power supply will be 6V and 1000mAh.

II. WORKING

Each Band has it's own unique ID that matches the ID in the server corresponding to which all users have saved data on it.

Arduino Pro Mini is the computer of our device which controls all the other devices . When we shake hands the ID's are exchanged via IR transmission.

Then that ID is sent to the android app via Bluetooth.

The Android app makes GET request to the server. This app server communication is handled by the PHP scripts which are uploaded on the server.

Having made this communication the server sends back the data corresponding to the ID to the android app.

Finally the android app saves the data of all the persons we have met and we can view that data anytime.



2.1 ANDROID APP

It is basically a communicator between the Smart Handshake Band and the server. It receives the unique “id” from the Smart Handshake Band via bluetooth and sends it to the server and gets back the data corresponding to that id in the server.

3. FUTURE WORK

Developing a user interface for uploading the business cards. This would include making an application for Smart phones and a computer program that can organize and store these uploaded business cards to files.

We would also like to incorporate a picture to be transferred along with a business card.

Another area we would like to work on would be to reduce power consumption and increase lifetime of the device by using sleep mode when not in use.

III. CONCLUSIONS

Our group was successfully able to complete what we wanted to do at the start of our project. We built a bracelet that successfully transfers business card data between two devices upon a handshake. All the user switch configurations ended up transferring data in the way they were designed to do. Not only did we have successful transfer between devices, but we also were able to transfer business card data upon a handshake to a Bluetooth terminal on a Smartphone. We are also happy that we were able to achieve a reasonable size and weight for our final product. The bracelet has a similar size and weight of a standard wristwatch.



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