INTRODUCTION

At smartConnect, we are working to develop the prototype for a gadget, smarBand, that helps connect people in order to expand their social network. It consists of a wristband and an app on the user's phone connecting the band with the specific user. When two users wearing the bands shake hands, their profiles stored on the app are shared, giving them a better insight of other user's professional life.

On the technical side, the product requires two types of data communications: Near Field Communication between two bands and Bluetooth communication between the band and the app installed on the phone. Upon a handshake, the bands will interact via NFC and will share the information stored on the bands. Once the band has received data from the other band, it will send that information to smartConnect app on the user's phone, displaying other user's profile. Therefore, by employing a simple hand shake gesture, smartBand will present useful information making it easier to view other person's profile and create a connection for future follow ups.

Our product serves all those individuals who want to connect with other businessmen, employers and people of their interest at the networking events in order to expand their business or social network. The product will the business professionals seeking to hire new employees and employment seekers who would like to showcase their profiles by saving their time looking for useful information about the other party. This document covers the progress on the development of our prototype.

SCHEDULE UPDATE

We are behind our schedule in terms of one part of hardware as storing multiple address for different tags in short period of time and the connections page of software section. Originally when we made the schedule we assumed that everything will work fine giving a week for some error management; however, when we started implementing the hardware we found that the Microprocessor Unit had troubles to store multiple tag IDs and this is an important feature of our product. We spent significant amount of time resolving it; however, we are still working on this part. This has delayed final hardware implementation that we had decided to finish up by March 29, 2016. On the software side, we are also behind on implementation of some of the functional features which is due to the number of features we added to the application. To make the application (app) display all useful information, we had to include multiple pages into the app making it complex. This delayed the application part that was scheduled to be done by March 21, 2016. Since, we are not done with the individual software and hardware parts, we are also behind the integration phase. All these delays in the individual phases has impacted our final testing schedule which has been now moved from March 29, 2015 to April 2, 2016.The current progress of these parts is discussed in the following section and given another week to cover up, we will be able to finish the product by April 5, 2016.

PROGRESS

***Hardware**:* The hardware part has four main phases: Microprocessor (Raspberry Pi-B model), Near Field Communication, NFC module (tag and reader), 3-axis accelerometer and bluetooth module.

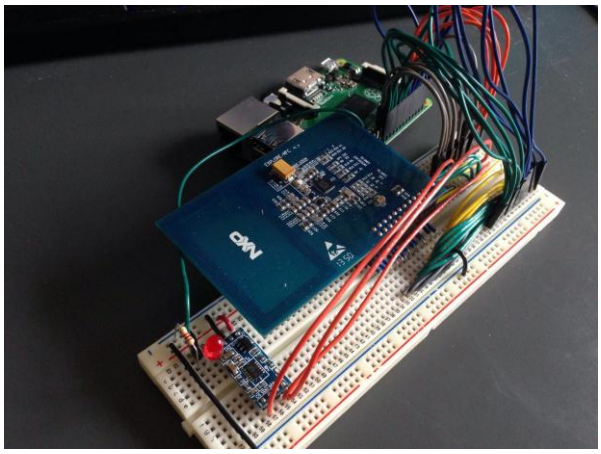

Figure 1: Integrated hardware for the band

We have finished implementing 3-axis accelerometer and NFC module with python.
The NFC module is able to read the tag when it is brought in its vicinity and stores the tag address in its memory. However, we are still working on storing multiple address for different tags in short period of time. The integration and coding for 3-axis accelerometer is also completed which uses vibration sensor to detect hand shakes. The mathematical algorithm of 3-axis accelerometer successfully detects the vibration of the handshake which turns the LED ON to indicate that reader has exchanged IDs. Overall, we have finished integrating all these modules together and made the tag reader read a tag; the only problem to solve is storing multiple address for different tags in short period of time.

Software: The software part had two main phases: Design of the application and Implementation of the features. We were able to finish the designing phase during the first week of march and have all the design layouts for our User Interface ready. This includes mock-ups for pages namely Profile setup, Events, Business, Connections. The Development phase is however in process with most of the features completely implemented. We have finished setting up the Profile creation and Profile setup enabling users to sign up for the app, login and import their information from LinkedIn Signup. The events page is also complete and users can see the posted networking events. The connections page that has all the people in user's contact is still under development and should be done by 29th March. The "My business page is still pending and we are trying to finish it by the end of the month. After these two features are done we will go to the next phase of the project that is Integrating the hardware and the application together. We are estimating to finish our integration phase within the first week of April and then prepare for the demonstration part after April 9.

REMEDIATION

Despite falling behind the schedule for one part of the hardware steps and few software features, we still have enough time for integration and testing. The main problem that does not allow us to proceed to the final step is the inability to store multiple tag IDs in short duration of

time. After researching on the problem and testing the individual parts, we have concluded that either there is a problem with the 3-axis vibration sensor or in the Raspberry Pi firmware. We have already bought a new vibration sensor to replace the existing one and are also trying to solve the issue by communicating with the manufacturer of Raspberry Pi to figure out if we have some issues with the libraries we are using. We have set aside one more week to solve this hardware issue, in the worst case scenario, if the problem still exists then we will demo our main functionality by rebooting Raspberry Pi that will be limited to processing of only single scanned ID. However, we are working to modify the implementation and believe that we can fix the issue by the end of the week.

FINANCES

Following table includes the details on the expenditure for all the hardware components used in setting up the band.

Hardware components	**Unit cost**
Raspberry Pi-B Model	$59.99
Bluetooth Module	$15.95
Wi-fi Module	$24.78
Micro SD Card	$13.19
NFC Controller Board	$35.25
Cable for Raspberry pi	$10.00
NFC tag	$12.99
HDMI to HDMI cable	$49.99
HDMI to VGA adapter	$45.00
Application server	$650
Total Cost	$917.19

In the initial phases of the research, we thought of making our product store user data on the band itself, however researching further gave complexities like increased transfer time so we had to complicate our application's functionality. This lead to some hidden costs that we were not aware of in the first few weeks of the research. Furthermore, we had to improve our design by ordering some more parts to eliminate the problematic features resulting into total cost of $917.19. This funding comes from the team as a whole as we will be dividing the total among all 5 team members equally.

CONCLUSION

Our smartBand is almost achieving its final state with just few functional features in progress involving storage of multiple tag IDs (on the hardware side) and implementation of few profile features (on the software side). With one more week into the final finishing up, we will start the final stage of integrating our band and the application. We have set our final deadline as April 9, 2016 and will be done with testing the product on whole. With the effort of all 5 team members we will be proudly demonstrating our final product on April 21 to display our prototype that we have been working on for last three months.