

*2006 – 2007 Final CREU Report  
“Security and Biometrics”*

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**Goals of Research**

- 1) Background research of commonly used biometric devices, related theory, and privacy issues.
- 2) Designing and administration of a questionnaire survey to investigate the acceptance and understanding of biometric devices by the IUP community.
- 3) Quantitative analysis of the results.
- 4) A hosting of an educational tutorial session on biometric devices for the IUP community.

Our overall goal for this year’s research was to investigate biometrics and RFID devices in order to have a firm grasp of the topic in order to educate the IUP community. In addition, we administered a survey so that we could gauge the current knowledge of RFID and biometrics in the IUP community. Our hypothesis was confirmed when the results were overwhelming to how little understanding and education the university community had regarding biometrics and RFID. It was then our ultimate goal to educate the public.

**Process Used in Completing Research**

For completing the research during the 2006 – 2007 academic year we broke it into separate sections and then assigned team members to specific portions in which they served as the team leader for that section. In Fall 2007 we compiled schedules and set up a time to meet every other week with our advisor. Next, we began to research for a background report which was due around October. In October, Melissa Karolewski and Dr. Rose Shumba attended the Grace Hopper Celebration of Women in Computing Conference in San Diego, CA to present a previous years research.

During the first weeks of the research, it was also decided that one researcher would take meeting notes, unfortunately that researcher began to slack on their duties and another researcher, the researcher that was updating the website had to take over the task. Most of the Fall semester was spent completing background research and investigating possible avenues to administer the questionnaire.

Before the end of the Fall 2006 semester, the questionnaire questions had been decided upon and the work began for submitting the questionnaire for the IRB process, a process at IUP that authorizes a project to be administered to the IUP community. The IRB process was completed in March 2007. During the Spring 2007 semester, because of conflicting schedules the group met less as a full research team, but communicated more over email. The group also presented **five** times during this semester. Highlights of their presentations can be seen below.

In April 2007, the questionnaire was administered to a sampling of the IUP community. In early May 2007, the results of the questionnaire were presented to members of the IUP community who

noted that they wanted to attend an educational tutorial on biometrics and RFID. This report marks the last portion of our research.

### **Conclusions & Results Achieved**

With help from the Applied Research Lab at IUP and Dr. Tom Short, a sample of 2000 members of the IUP community was randomly selected to receive and invited to participate in the survey. We hypothesized that the community in general and the IUP community specifically had a lack of knowledge in the area of biometrics and RFID. Over 800 people agreed to complete the online questionnaire, giving the questionnaire around a 50% response rate. Rather than including the entire results of the questionnaire, we have included a snapshot of the results obtained from the research. The participants were asked if they were familiar with biometric devices, 54.42% of those surveyed in the IUP community indicated that they were not familiar with biometric devices. Further, 65.49% of those surveyed said that they were not aware that they interacted with biometric devices on a daily basis. This was surprising to the researchers, in that the student ID at IUP, the IUP I-card is a smart card. 67.01% of those surveyed said that they would be willing to use a fingerprint reader on a frequent basis. 48.29% of participants have seen a fingerprint reader and 48.81% have used a fingerprint reader. Regarding RFID, 59.59% of participants were aware that RFID technology exists. Overall the results were as the group expected, biometrics was not a topic that the general public is very knowledgeable and educated about. Regarding RFID devices for entry control, 43.86% of the participants would be willing to use a non-implantable RFID, such as a proximity badge, on a frequent basis. The results for chipping were just as expected, when asked if participants understand what “chipping” was 58.31% of the participants said that they did understand what it was. Only 13.04% of the participants said that if an employer told them that they either had to get “chipped” or get laid off they would agree to be “chipped” and 46.80% were not sure if they would get chipped. Lastly, 83.83% of participants believed that an implantable RFID security device would infringe upon their personal privacy. Overall, we met all our goals for the year and obtained a strong basis and data set that could be used for further research and education.

### **Publications & Presentations**

- ⇒ Creation of and maintenance of Women in CS website on the IUP Computer Science web-server. Assistance from a friend outside of the CREU research team (Fall 06)  
[http://www.cosc.iup.edu/www/studentResearch/womenofcs\\_files/index.html](http://www.cosc.iup.edu/www/studentResearch/womenofcs_files/index.html)
- ⇒ “Biometrics & Security,” presentation (C-CUE (Consortium for Computing in Undergraduate Education, Inc) Conference – 2nd Place in New Technologies & Administrative Applications, Feb. 07.)
- ⇒ “Is Big Brother Watching”, presentation (PACISE conference, Lock Haven, PA; March 2007.)
- ⇒ “Is Big Brother Watching: Ethics of Biometrics and RFID Systems”, poster (IUP Natural Science and Mathematics Women in Science’s Poster Session, April 2, 2007.)
- ⇒ “Do You Know Who’s Watching?”, presentation (IUP Undergraduate Scholars Conference, April 11, 2007.)
- ⇒ “Do you know who is watching? A Tutorial on Biometrics & RFID”, (presentation to interested questionnaire participants, May 2, 2007.)