

Homework 1: Team Building and Project Idea

Due: Friday, January 13, at NOON

Proposed Project Name: RFID Checkout X-pr3ss

Team Members (#1 is Team Leader):

#1: Jennifer Tietz **Areas of Expertise:** Computer Engineer (software)

#2: Joshua D. Chapman **Areas of Expertise:** Computer Engineer (software)

#3: Jared Suttles **Areas of Expertise:** Computer Engineer (software)

#4: Jonathan Chen **Areas of Expertise:** Computer Engineer (software)

Project Idea #1:

Our team proposes the design of a RFID system for a supermarket to enhance the customers' purchasing experience and eliminate the checkout process. Our boxed solution would be placed on the exit door archway. In order to use the supermarket, customers would be given an RFID card to attach to their keychain, which contains personal identification, email, and account information. Customers would fill their carts with their desired items (each affixed with an identifying RFID tag with pertinent information, including price) and pass through the exit. Our reader would record all of the items in the customer's cart and send an email receipt to him or her. The potential also exists to interface with the customer's account on file and bill the purchase.

Estimating the cost of the prototype system was difficult at this early stage. However, we anticipate the need for an antenna, receiver, tags, and a microcontroller with Ethernet capabilities, at minimum. We estimate the antenna to cost \$500 (Gate Antenna for High Frequency Readers), the receiver to cost \$10 (S6700 Multi-Protocol Transceiver), and the tags to be of nominal cost. Therefore, the total cost of the project will be approximately \$515. However, we anticipate receiving at least one of these items as a sample, thereby making our prototype even more economical.

All team members happen to be computer engineering students with expertise in software, yet we were able to come up with a general division of tasks. While all team members plan to participate in all aspects of the project design, individuals accepted specific lead tasks. Jonathan Chen will be taking responsibility for the software design narrative and design constraints and component selection rationale; Joshua D. Chapman will work on packaging specifications and patent liability analysis; Jared Suttles will take responsibility for the PCB layout and social/political/environmental rationale; Jennifer Tietz will complete the circuit schematic and reliability and safety analysis.