**Design Document**

**Website:**

* Should be separated into three groups, depending on permissions:
  + Student
    - View personal data
      * Distance traveled
      * Calories burned
      * Most frequented location
    - View leaderboards
      * Longest distance traveled
      * Most calories burned
  + Faculty
    - View general data
      * Total distance
      * Total calories
      * Most frequented location
    - View area data (Table)
      * Area name
      * Total pings
      * Traffic Percentage
    - View user data (Table)
      * First name
      * Last name
      * ID
      * Distance traveled
      * Calories burned
    - Create faculty/student accounts
    - Modify user registered RFID chips
  + Admin
    - All faculty permissions
    - All faculty data (general/area/user)
    - Create admin accounts
    - Modify passwords
* General Layout
  + UARK themed colors (red/white)
  + Log/Nav bar located at the top of the page
  + Centered
  + Foundation - quick/easy styling
    - Allows access to logout and advanced options (create users/modify accounts) depending on permissions.
* Login page
  + Secure login
  + email/password
* Faculty/Admin page
  + Separated into three tabs, one for general, area, and user data.
  + JTables will be used to represent area/user data, should pull from the server upon loading/searching for entries.
  + Admin options will not appear on the faculty page.
* Student page
  + Simple grid displays user data/leaderboards
* Registration/modification pages
  + Follow basic website layout

**Database:**

* RFID\_Bike database
  + Users table
    - First name and last name
    - University ID
    - RFID ID number
    - times scanned
    - total distance traveled
    - calories burned
    - last reader checkin ID
    - Email
    - Password
  + reader\_info table
    - reader ID number
    - reader number (reader #1, #2, etc…)
    - location
    - distance to each reader
    - total checkins on the respective reader
  + RFID\_info table
    - RFID ID
    - University ID
    - TimeStamp of last time read

**Server:**

* LAMP Server
  + holds MySql database
  + hosts the website
  + contains PHP program to update database
* PHP Update
  + grabs information from a GET request and updates database user
    - the RFID number, reader ID number, and timestamp gets passed to the program
    - the program searches for that ID in the database and updates that users information respectively
    - increments time\_scanned by one, calculates new total distance, and calories burned (MET method) for user
* Add New Reader to System
  + adds new reader to the reader\_info table (reader ID number and location)
  + add new column for distance to/from other readers in the system

**RFID:**

* Mercury API
  + Provides library and the necessary needs to communicate with the Thing-Magic Reader
  + Written in Java
* Reader.java
  + Gathers information from tags read by the reader
  + Uses multiple libraries to perform needed actions
  + Uploads the Tag ID via calling a php file from the server
    - Sends Tag ID
    - Timestamp
    - Reader/Location ID