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| **Group** 27 | Item Tracker |
| **Major:** | **Team members:** |
| CS | Mohammad Aljagthmi |
| EE | Ryan Ly |
| CEG | Jake Manser |
| CS | Donald Taylor |

**System Design Trades**

Hardware design trades

1. Controller
   1. Size
      1. Constraint 10
      2. Constraint 20
      3. Constraint 30
      4. Constraint 40
   2. Wi-Fi Compatibility
      1. Requirement 1.0
      2. Requirement 2.0
      3. Requirement 3.0
      4. Constraint 70
      5. Standard 10
   3. Controller
      1. Constraint 60
      2. Constraint 160
      3. Constraint 180
      4. Standard 40
      5. Standard 90
      6. Standard 100
2. Lighting
   1. Size/Power consumption
      1. Constraint 60
3. Power source
   1. Size
      1. Constraint 10
      2. Constraint 20
      3. Constraint 30
      4. Constraint 40
      5. Standard 40
   2. Voltage output
4. Case
   1. Damage resistance
      1. Requirement 18.0
      2. Requirement 19.0
      3. Requirement 20.0
      4. Requirement 21.0
      5. Allows Wi-Fi Through
5. Attachment method
   1. Secure attachment
      1. Requirement 4.0
      2. Standard 20
   2. Removable
      1. Requirement 4.1
   3. Capable of reattachmen
      1. Requirement 4.2

Software design trades

1. GUI
   1. Programming language
      1. Requirement 3.0
      2. Requirement 7.0
      3. Team Familiarity
      4. Portability
      5. Database Interaction API
   2. Platform for delivery
      1. Constraint 190
      2. Time to Develop
      3. Complexity
2. Database
   1. Database language
      1. Requirement 7.0
      2. Constraint 190
      3. Hardware Profile Requirements
      4. Additional Tools Included
3. Background Services
   1. API
      1. Requirement 7.0
      2. Hardware Profile Requirements
      3. Runs without Application In Memory
4. OS Communication
   1. API
      1. Requirement 7.0
      2. Team Familiarity
      3. Ease of Interface
   2. Communication to External Services
      1. Requirement 7.0
      2. Team Familiarity
      3. Ease of Interface
5. Tracker
   1. API
      1. Compatible with Adafruit HUZZAH ESP8266 breakout
      2. Compatible with Raspberry Pi Zero W
      3. Compatible with Arduino MKR WiFi 1010
      4. Compatible with Adafruit Feather M0 WiFi – ATSAMD21 + ATWINC1500
   2. Communication methodology to transmit data
      1. Requirement 1.0
      2. Requirement 3.0
      3. Constraint 70
      4. Standard 10
      5. Complexity
   3. Structure of data transmitted
      1. Requirement 1.0
      2. Ease of Parsing
      3. Compatible with Chosen Protocol