Overall System Level Design

System Architecture (also look at the diagram below):
- The LCD Touch Screen and speakers will be enclosed in the internal and external casings and will be mounted to the arm and positioned in front of the Customer.
- The arm will be mounted to the wheelchair and will hold the LCD Touch Screen in front of the customer so the customer can easily access the GUI.
- The computer and the batteries will be positioned under the customer’s feet and attached to the wheelchair.
- The computer components and the LCD will communicate through a single cable that will run through the arm.
**External Enclosure of LCD**
- thermoformed polycarbonate molded in brinkman lab and sent to be thermoformed
- Weather resistant, proper temperature requirements, and impact resistant
- Speaker mounts incorporated into thermoformed case
- Arm mount incorporated into case (removable)
- Will harness and attach cables required for LCD/computer components
- Proper ventilation requirements built in.

**Internal Enclosure of LCD**
- internal components shock mounted to thermoformed case
- proper ventilation requirements built into case design
- provide seal for LCD to protect internal components

**Graphical User Interface**
- provide all categories and pictures required per customer needs (may require purchase of additional mayor Johnson symbols)
- incorporate an appealing interface
- programmed running windows CE and using Visual Studio

**Arm Design**
- side mounting with multi-angle adjustability
- provide minimal deflection and stress along all parts
- provide a mounting end to mount LCD computer component
- provide a channel for cable attaching LCD and computer components under wheelchair
- completely removable

**Computer Components**
- Single board computer with required specifications as provided per metrics (ability to run Windows CE and be compatible with LCD component)
- Mounted under wheelchair with removable mounting
- Weatherproof casing
- Incorporate power saving to meet operating time requirements
- Incorporate audio output

**Power Components**
- meet power consumption requirements of SBC
- Meet 16 hour battery life
- Mounted under wheelchair with removable mounting
Speaker Components
- provide proper noise levels
- compatible with SBC
- Integrated into LCD external enclosure
- Provide wire to attach to computer components under wheelchair (volume control under wheelchair)

LCD Touch screen
- incorporated into external LCD case
- Maintain requirements for size of interference provided via metrics
- USB touch screen with integrated LCD monitor
- Shock mounted in case as well as sealed to protect
- Provide screen contrast and brightness adjustability to external LCD enclosure