Features

SmartCart is an interactive touchscreen display affixed to the handlebars of a shopping cart which allows users to:

1. Scan items to a checkout list
2. Find aisle locations of items
3. Search for item availability
4. Obtain item coupons (which are also advertised in sleep mode)

It can be utilized in supermarkets, department stores, etc.

Software

Level Shifter

Maxim: 3233
Converts DB9s to UART and sends data to the processor.

Power

Voltages needed: 19.2V, 5V, 3.3V, 3V (all DC)
- 3.3V power plane
- 19.2V supplied
- 2 linear regulators

Barcode Scanner

ID Tech: Econoscan II
Scans items to add to user’s shopping cart. Interface is DB9 DCE and it is interrupt driven.

Processor

NXP: LPC2478
Single-chip 16-bit/32-bit micro, ARM 7, 512 kB flash

External Memory

SDRAM Micron: MT48LC8M16A2
SD Card, SanDisk, Connector Kyocera: 5638
Stores layout map, database, and all other static information. Interfaced via external memory controller.

New Haven: NHD-3.5-320340MF
Has capacitive Touch Panel with a 6-pin connector which uses an I2C interface. The 54 pin TFT uses SPI interface.

RFID

SonMicro: SM130
Module has attached PCB antenna used to read RFID tags (both from Milifare) which are placed at the entrances of aisles to update cart location and display corresponding information on the LCD. Uses UART interface.