

# Portable Barcode & Smart Card Reader for Grocery Retail

Custom Hardware Design

Embedded Firmware

Smart Card Integration

Kiosk Software

Web Application Development

## CLIENT

A US-based technology solution provider for the retail sector.

## THE PROBLEM

The client wanted to give grocery shoppers a way to build a shopping list by scanning items — in-store, on their own, with a portable device — and then have that list waiting for them when they got to a kiosk. That meant the handheld device itself needed to be genuinely portable (battery-powered, not tethered), capable of reading the barcode formats actually used in grocery retail, and able to write that list onto something the customer could carry to the kiosk and have read back — which meant a smart card. And the kiosk side — reading the card back and presenting the list — needed building too.

## WHAT WE BUILT

We designed the handheld device around two integrated functions: a barcode scanner and a smart card reader, working together rather than as separate add-ons. For the scanner, we used infrared illumination so scans stayed reliable under normal store lighting, and added an easy-to-read status indicator so shoppers could tell at a glance whether a scan registered. The scanner covers the common barcode formats found across grocery products. As items get scanned, they're written directly onto the customer's smart card — building the list as they shop. On the other end, we built the kiosk software and an accompanying website so that when the customer reaches the kiosk, their card can be read back and the list they built while shopping is right there.

## WHAT IT DOES

- ✓ Battery-powered handheld device combining a barcode scanner and smart card reader as one integrated unit
- ✓ Reads the common barcode formats used across grocery retail products
- ✓ Uses infrared illumination for reliable scanning under normal store lighting
- ✓ Easy-to-read status indicator confirms each successful scan to the shopper
- ✓ Writes scanned items directly onto the customer's smart card as they shop, building a list in real time
- ✓ Kiosk software and companion website read the smart card back and present the customer's saved list in-store

## OUTCOME

The client's retail customers got an end-to-end self-service shopping list experience — scan as you go, then retrieve your list at the kiosk — built as one coherent system rather than separately sourced hardware and software pieces.