

# Connected Food Processing Machine Controller

Custom Hardware Design

Embedded Linux

Touchscreen GUI

Mechanical Control Integration

## CLIENT

An India-based food equipment manufacturer.

## THE PROBLEM

The client's automated food preparation machine needed to feel like a modern self-service kiosk to the customer — pick a product, choose a quantity, confirm preparation settings — while underneath, the actual cooking process involved a temperature-sensitive stage that had to be controlled precisely regardless of what the customer-facing screen was doing. A single controller trying to do both the graphical interface and the real-time mechanical control risked compromising one or the other.

## WHAT WE BUILT

We split the system deliberately into two coordinated parts rather than forcing one controller to do everything. A touchscreen-driven controller, running a full operating system, handles everything the customer sees and interacts with — product selection, quantity, preparation options — where a rich graphical interface matters most and real-time timing constraints are looser. Alongside it, a dedicated controller manages the mechanical assembly directly, including the temperature-sensitive cooking stage, where precise, real-time control matters most and a full operating system would only get in the way. The two stay in sync constantly, so the customer's selections on screen translate directly into what the mechanical side actually does — the customer never sees the seam between the two systems.

## WHAT IT DOES

- ✓ Provides a touchscreen interface for customers to select product type, quantity, and preparation settings
- ✓ Runs a dedicated real-time controller, separate from the touchscreen system, to manage the mechanical assembly
- ✓ Monitors and precisely controls a temperature-sensitive cooking stage via dedicated sensors, independent of the graphical interface's workload
- ✓ Keeps the customer-facing interface and the mechanical process continuously synchronised, so on-screen selections are reflected physically in real time
- ✓ Splits responsibilities across two controllers so neither the interface nor the real-time control is compromised by the other

## OUTCOME

The client got a machine that presents a modern, self-service experience to customers while the actual food preparation — including the parts that need precise real-time control — runs on hardware suited to that job, with the two halves working together seamlessly from the customer's point of view.