# ACS System Functional and Testing Specification.

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## Purpose

This document describes full all the functionality of the ACS system It is designed so that it can also be used for testing the functionality.

## Overview

The ACS system has been built to record all the critical steps of food preparation as required by lay and implemented by prepared food supplies. The rules are set out in the Australia New Zealand Food Standards Code - Standard 3.2.2 - Food Safety Practices and General Requirements (Australia Only).

Specifically the standards specifies in section 7 (Food processing) part 3

          A food business must, when cooling cooked potentially hazardous food, cool the food –

(a)          within two hours – from 60C to 21C; and

(b)          within a further four hours – from 21C to 5C;

The standards also specify that a food business must have a food safety program where “**food safety program** means a program set out in a written document retained at the food premises of the food business, including records of compliance and other related action,”

The purpose of the system is to allow complete traceability of all food produced by the facility.

For the purposes of data capture the workflow of a commercial kitchen is treated as three units

1. Dock: High risk ingredients arriving at the dock have their temperature measured. If the temperature is acceptable they are assigned an ID and a barcoded label is printed and applied so that this ingredient and be tracked.
2. Kitchen: This is the area where ingredients are combined and prepared to create meal components. Typically a component is prepared by a chef then chilled and finally moved to a coolroom. Recording of temperature data is mandated by law. There are a number of preparation types and associated times and temperatures. For example, cook-chill (CC) stipulates that the component must reach a temperature of 75C to be considered safe. Then it must be chilled and be below 21C in under two hours and then under 5C in 6 hours. All three temperatures and times are recorded.
3. Plating: This is the area where the components prepared in the kitchen are assembled into plated meal items. Components are removed from the coolroom and have their temperatures recorded. All the meal items must be assembled within a specified timeframe and must remain below a specified temperature. Temperatures and times are recorded by the system.

## Technical Overview.

This is a data capturing and recording system. All the captured data, such as temperature measurements and the associated times are recorded in a relational database. The database uses a traditional structure where a single record will record all the data associated with a specific object. Ie, a food component record has fields for each milestone temperature, the time at which the temperature was recorded and the user id of the user recording the data.

There are two points of access to the database.

* A website or portal. This is used by administration staff to enter and maintain the core data used by the system. This is:

1. User or login data. Users and be added to the system and their privileges maintained
2. Menu data. This specifies the menu items to be prepared, the components of each menu item and high risk components of the menu item component.
3. Quantities of each menu item to be prepared per shift

The website portal also has a reporting facility.

On the same server as the web server is a print server that manages the label printing.

* Handheld devices or QPAKs. These are apps running on an encapsulated mobile phone and associated hardware interface to temperature measurement and barcode scanning. The apps communicate with the database via a REST interface. The handheld devices will locate the REST server by broadcasting a UDP request that a UDP server on the main server will respond to. In the event of a system failure this facility will be used by the backup server to detect when the main server has failed and the handheld devices will automatically connect to the replacement system.

### Data integrity, backup, failover and recovery.

All data will be stored in a relational database. Initially this will be MYSQL but the interface has been developed to specifically allow other databases to be used. Data integrity will be maintained by placing all transactions within transaction boundaries and handling rollback and retry appropriately. In the unlikely event of a transaction failing the user will be notified and will have the option of repeating the process.

The system, including the database will be mirrored to a second onsite server so that in the event of a catastrophic server failure no data should be lost and it will be possible to switch servers with no interruption to the use of the system. It will be possible to develop an automatically failover system but this will not be part of the initial offering.

## Functional Specification

### Portal

#### User management

Purpose: allow login details to be created and maintained

The login details maintained are

* Username – for manual logging in to the portal or a QPAK
* Password – as above
* Used first and last names that are displayed when logged in
* Attributes
  + Admin – allows access to portal
  + Kitchen
  + Dock
  + Plating
  + Supervisor

A user label can be printed from the users screen that shows the user name and a barcode. Scanning this barcode will log the user into a QPAK. The functionality available to the user will depend upon the attributes set

Testing

Check that a user can be created.

Check that it is possible to change parameters and attributes

Check that it is possible to print a label for this user

Check that the barcode on this label correctly logs the user into a QPAK.

Check that the facilities displayed on the logged in QPAK are appropriate

* Dock should only be visible if the ‘dock’ attribute is set
* Kitchen should only be visible if the ‘kitchen’ attribute is set
* Plating should only be visible if the ‘plating’ attribute is set

#### Menus

Menus are a list of menu items and their components. Menu data is normally entered into the system by uploading a csv file. Some parameters included start and end times can be set at the time of uploading

Csv format

This is based on the menu suppled by STIX. It is a little complex and as there is no comprehensive format checking and reporting in the menu upload system (yet) care need to be taken to follow the format. It is recommended that new menus are tested by uploading to a test system before uploading to a production system

Testing:

Create a cvs menu