Harware Layer

Control Drawer

M1	M2	M3	M4
CTRL	CTRL	CTRL	CTRL

Detect Drawer Position Swirtch

1	Front	2	Front	3	Front	4	Front
	Behind		Behind		Behind		Behind

LCD

LCD - LED CTRL

Recording/Audio

- S19 - REC/STOP
- S20 - PLAY
- AMPLIFIER SPEAKER
- MIC IC

S1 - RST

GPIOs x8 [AP]

GPIOs x 8 [EXTI Mode]

(SPI, DC, RST)

GPIO x1 (S19,S20)

MCU
(STM32F103C8T6)

DBG

Navigation Button Control

- S2 - Left
- S3 - Right
- S4 - Up
- S5 - Down
- S6 - Enter

GPIOs x 5 [EXTI Mode]

GPIO [IO]

I2C

GPIO [Output]

Temperature
Sensor
(DS18B20)

Real Time Clock
RTC (DS1307)

Refrigeration

- FAN
- Cooler

Power CTRL
(MOSFET)

LDO 3V3 ← LDO 5V

Battery 11.1V @3.2Ah → Regulator @12V

Application Layer

Application Model

View (GUI)

Model (Program rules/Data)

Controller (Translator/Mediator)

Update

User Action

Notify

Update

View (GUI)

Show data

Read controller data

Controller (Events)

Update GUI / Data (Outputs)

Read rules / User actions (Inputs)
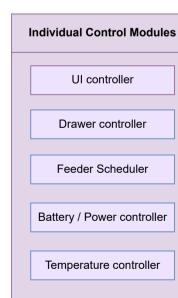

Model (Rules)

Read controller data

Update program state

General Modules

LCD (GUI)

Program (Model)

Events (Controller)

Individual Control Modules

UI controller

Drawer controller

Feeder Scheduler

Battery / Power controller

Temperature controller

Audio controller

Event controller

Rules controller