- Jonathan Calderon
- Jayme Lee
- Brandon Ray
- Kyle Ingram

Fridgenius

# What is Fridgenius ?

Fridgenius is a high tech fridge accessory which allows users to track and maintain information regarding their food items

# Imagine…

- Housemates share the same fridge
- Full of assorted food items
- Two people claim the same item
- Whose is it?
- Fridgenius knows!

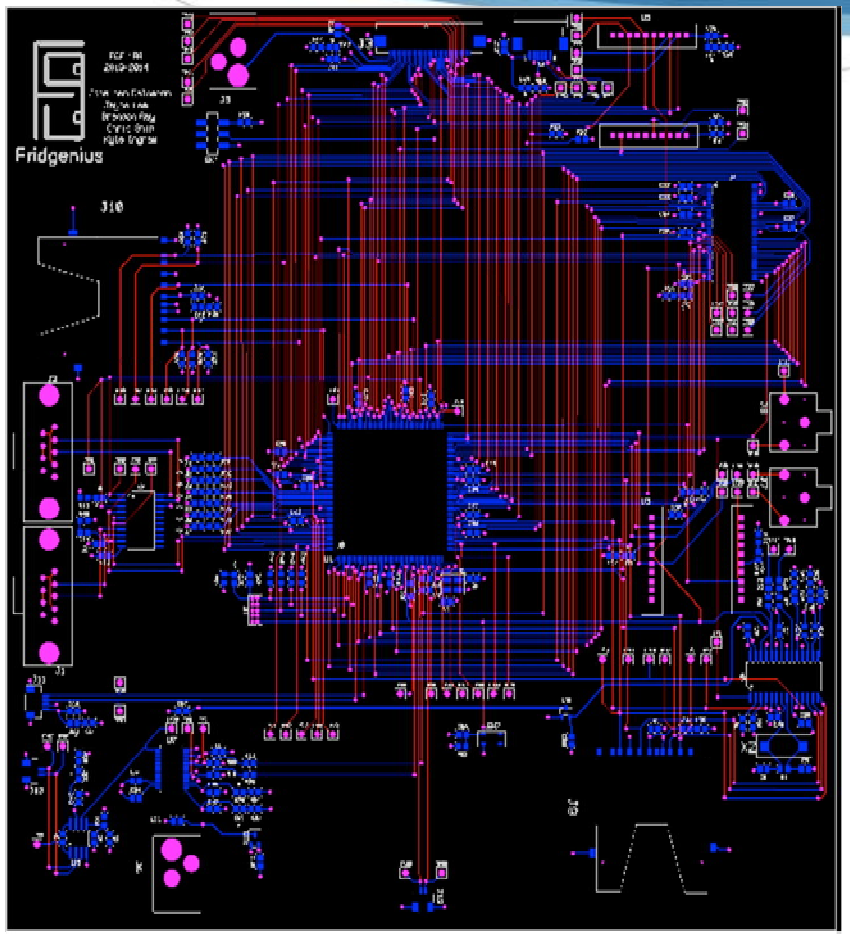
# User Process

- Enroll a personal ID via the fingerprint scanner
- Log in to account after identification is validated
- Add items to account using a barcode scanner
- Measurements can be made with the Bluetooth scale
- All records/information viewed with the LCD screen

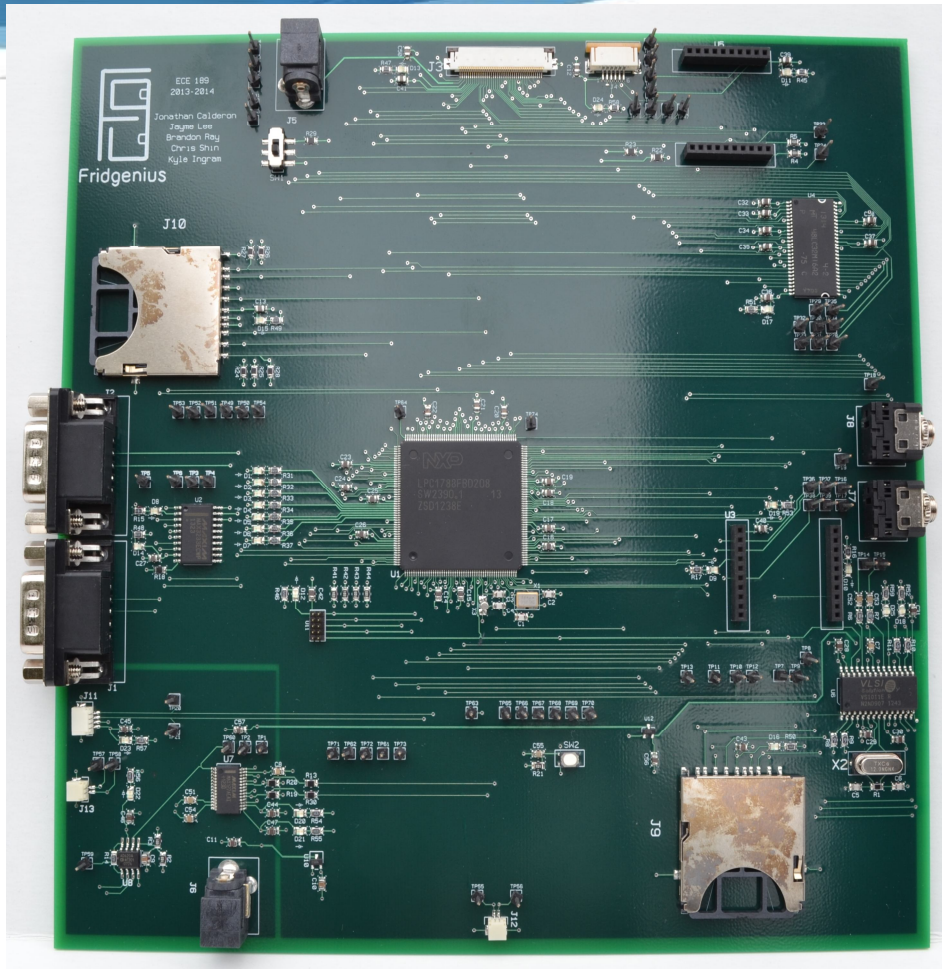
SPI/I2C
UART
UART
UART
UART
EMC
NXP
LPC1788
BT
reflex

# Board Layout

## PCB Artwork




## PCB Assembly



# Team Member Responsibilities

- Jonathan Calderon – Wifi/LCD
- Jayme Lee – Power/Fingerprint Scanner
- Brandon Ray – Memory/Barcode Scanner
- Kyle Ingram – Bluetooth Module/Scale

# Fingerprint Scanner

ADH GT-511C3 Fingerprint Scanner

- UART communication
- Sensor takes three pictures per enrollment
- Groups all pictures into one large string of data

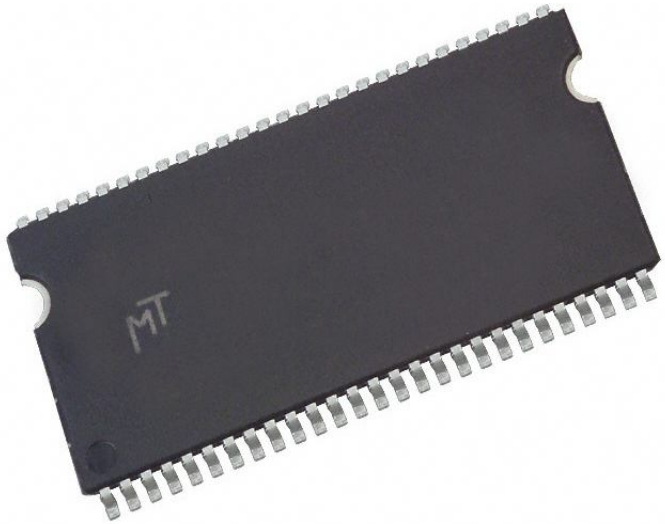
Properties

- 1:1 verification and 1:N identification
- Enrolls up to 20 users

# Memory

Micron MT48LC32M16A2P SDRAM

- 512Mb (32M X 16)
- Used to store data
  - LCD images
  - Fingerprint enrollments
  - Food item information



# Bluetooth Scale/Module

Bluetooth Module RN41XVC-I/RM

- Short range wireless communication
- Used to receive measurements from the Bluetooth scale

Reflex NutriCrystal Scale

- Can weigh up to 5000g
- Has a range of 33 feet

# Barcode Scanner

Honeywell MS5145 Eclipse

- Scan an item by its barcode
- Add item to users account

Properties

- DB9 – UART interface
- Interrupt driven

# LCD Touchscreen

NHD-5.0-800480TF LCD Display

- View food items and user information
- User interface for system

Properties

- 5.0’’ capacitive TFT
- 24-bit RGB interface
- 800x480 pixels

# Wifi

Wifi Module RN171XVW-I/RM

- Uses wireless connection to pull data from online resources
- **Used for future implementation**

# Future Implementations

- Recipe suggestions
- User profile music playlist
- Audio streaming
- Digital receipt scanner
- Freshness tracker
- Shelf load sensors

# Problems Faced

- Shipping delays
- Pin connections and wrong traces
- Time to implement all subsystems
- One group member withdrew from class

# Applicable Advice

- Plan ahead
- Use debugging tools
- Avoid unforced errors
- Seek support from the TA

# Special Thanks To…

- Professor Johnson
- Eric Goodman
- ECE Department
- ECE Shop
- Our Sponsors

# Fridgenius

Questions?