

Zipcart

Final Project Review

Team 26: Ryan Lagasse, Ricardo Henriquez, Jonathan Azevedo

Team



Ryan Lagasse



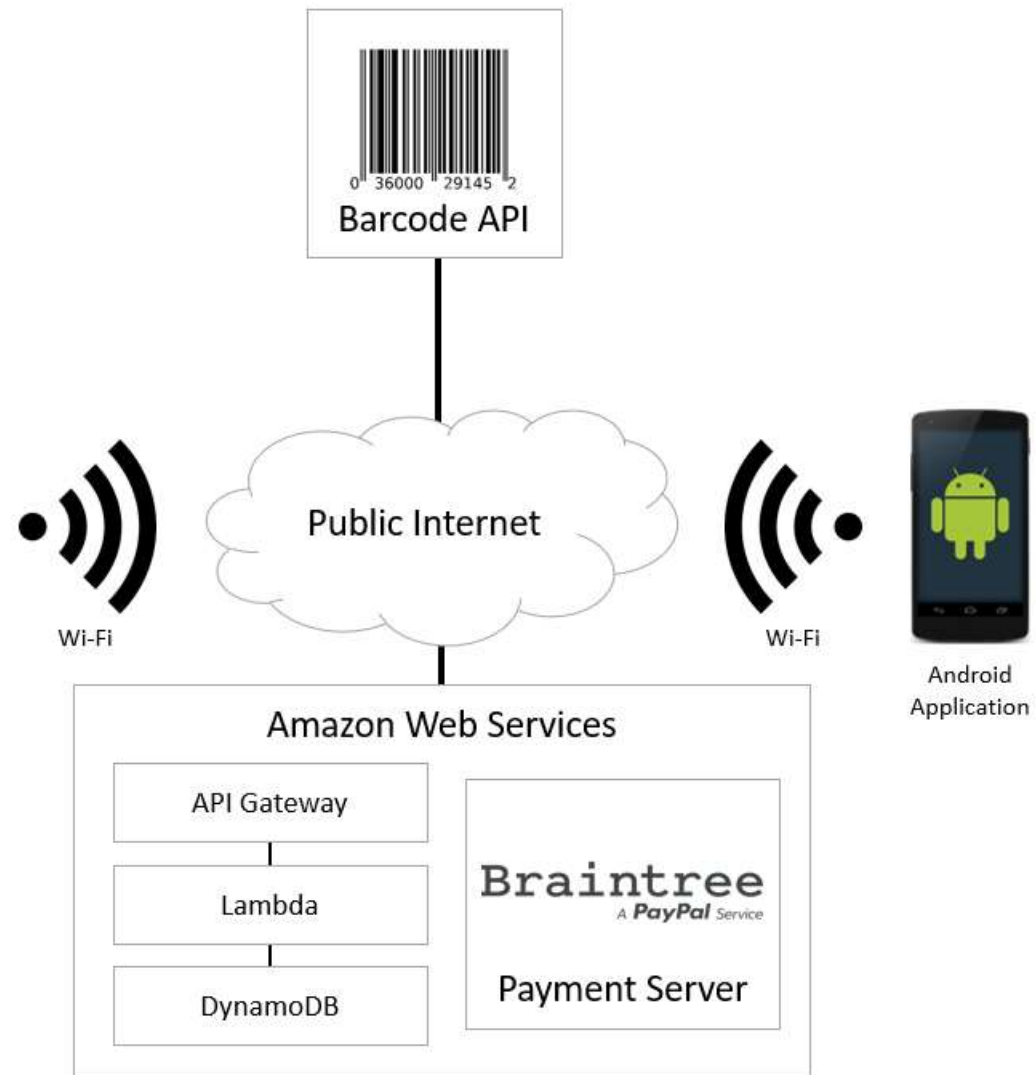
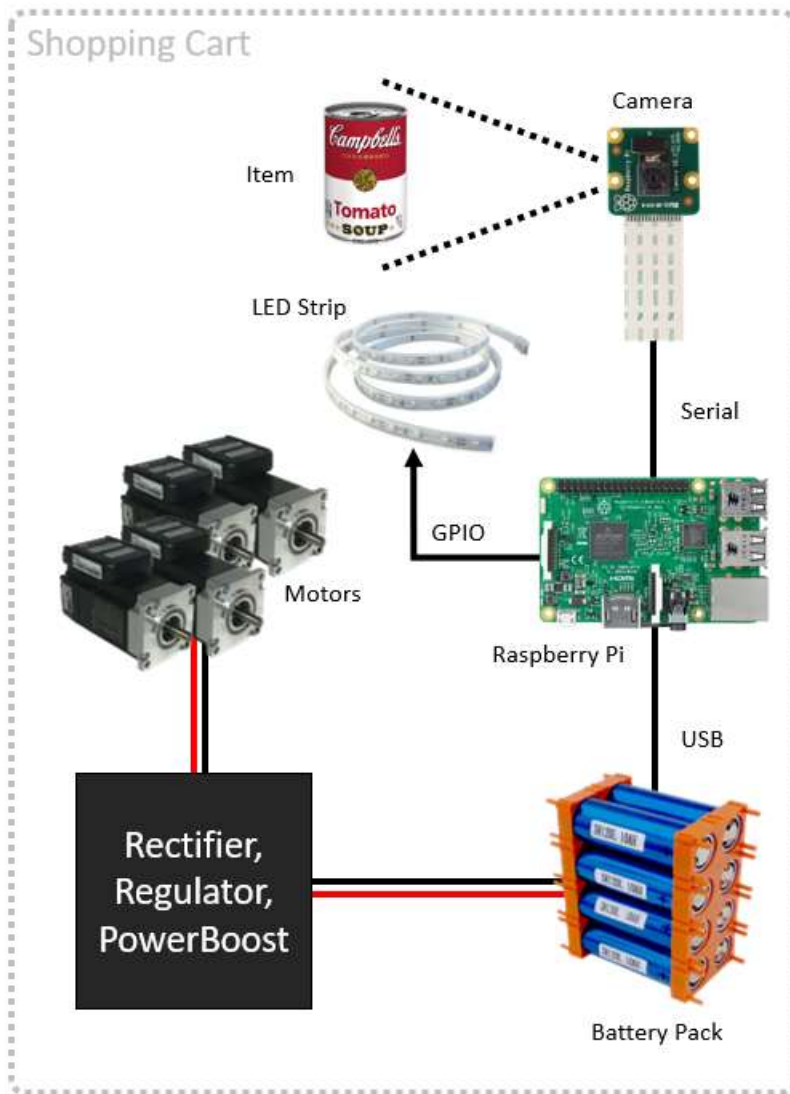
Ricardo Henriquez



Jonathan Azevedo

Professor Tilman Wolf
- Advisor -

Shopping Cart



FPR Deliverables

- ✓ Fix detection
- ✓ Remove items as they exit the cart
- ✓ Populate PCB
- ✓ Wire motors, battery, and Pi to cart
- ✓ Integrate app and payment

Recent Challenges

- ✓ Mounting & aligning motors
- ✓ Facilitating payment
- ✓ Checking for the completion of the order
- ✓ Synchronizing requests made for items

Power

- Motors and gears are mounted and aligned on custom wood frame
- PCB is fully populated, plan to 3D print enclosure box for demo day
- Linear vs. Switching Regulator Results

	Voltage	Current	Power
Linear Regulator	18V	170mA	3.06W
Switching Regulator	5.63V	535mA	3.01W

- Raspberry Pi 3B Power Consumption

Pi State	Power Consumption
Idle	260mA (1.4W)
ab -n 100 -c 10 (uncached)	480mA (2.4W)
400% CPU load	730mA (3.7W)

Power

Summary

- Switching regulator provides more current, yields faster charging rate
- Generating more power than consumed

Demo

- Adafruit power meter is only measuring voltage, having issue measuring current, need to calculate power using calculator (for now)
- Both regulators are wired on breadboard for convenience
- Push cart to see batteries charge

Detection Trials


Scan Status	Held Still	Slow Entry	Normal Entry
Correct Barcode; in API	38	25	10
Correct Barcode; not in API	11	7	3
Incorrect Barcode	1	0	0
No Barcode Detected	0	18	37
Total	50	50	50

Graphical User Interface



Demo Overview

- Detection & User Interface
 - Order Creation
 - Item Addition & Removal
 - Payment & Order Completion
- Power Generation



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