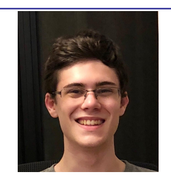
Smart Coaster

Angus Mo, Joshua Howell,
Jonathan Capozzi, Timothy Shum
Faculty Advisor: Prof. Joshua Yang

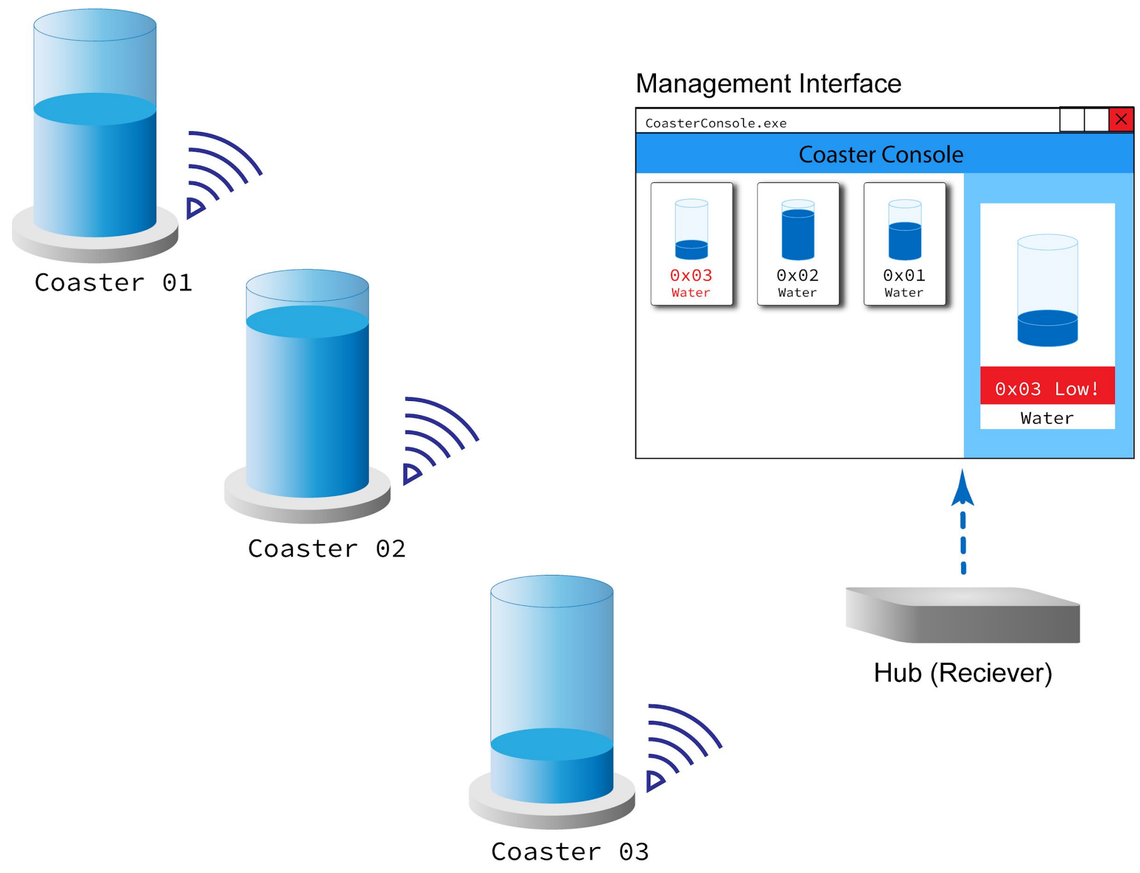




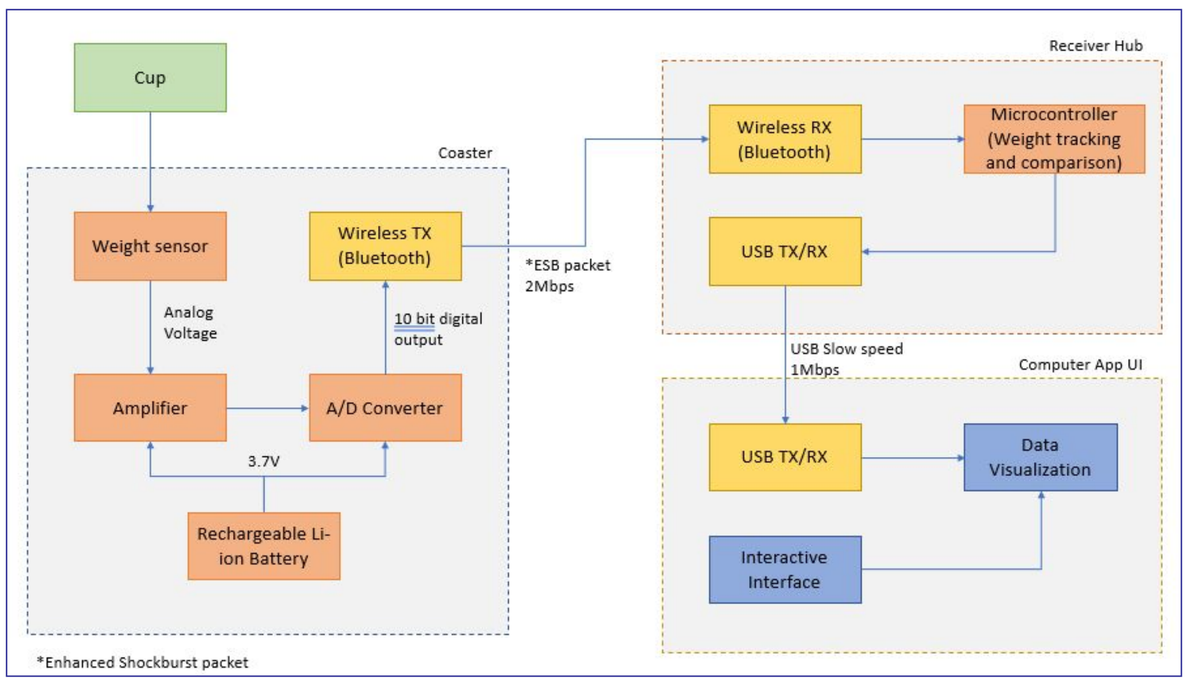
Abstract

To maintain customer satisfaction, a wireless coaster system would provide wait staff with notifications whenever a customer's drink is near empty. This system will be able to detect and differentiate the weight of a full cup to an empty cup, and many states in-between. Wireless communication between multiple coasters provides convenience to wait staff by promptly notifying them if a drink is almost finished.

System Overview



Block Diagram



Results

The Smart Coaster team was able to develop an intuitive coaster management system. The system managed multiple coasters simultaneously through the hub. In addition, each coaster provided at least 3±1.45 mL (water) of accuracy. Moving forward, we intended to develop a stack charging system, use smaller batteries, implement a reworked PCB, and design a better coaster enclosure.

Specifications

Requirement	Specification	Value
Accuracy	Empty Glass Detection Rate	≥95% detection ≤1% false positives
Usability	Battery Life	≥12 hrs. ≤5 hr. Between charge
	Connectivity	Support for multiple coasters
Form	Thickness	<2 cm thick

Acknowledgement

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