BarBot

A Mobile Manipulator Robot for Drink Preparation and Serving

OVERVIEW

With an increasing bar-going population, bartenders face the problem of spending time pouring the drink. We wanted to ease their work while ensuring that they can focus on customer satisfaction

SOLUTION

We're programming the robot to be a bar tender that can dispense beer from a tap, allowing bartenders more freedom to interact with customers and keep them happy.

TARGET AUDIENCE

The robot itself is meant to aid the bartender on shift so, upscale bars and bartenders are the primary audience. While the novelty would be for the customers of the bar.

FRONTEND

The frontend applies a Mobile First approach that adheres to Material by Google design principles. This optimizes usabilty by simplifying the ordering process to just two clicks: select a drink and select a size.

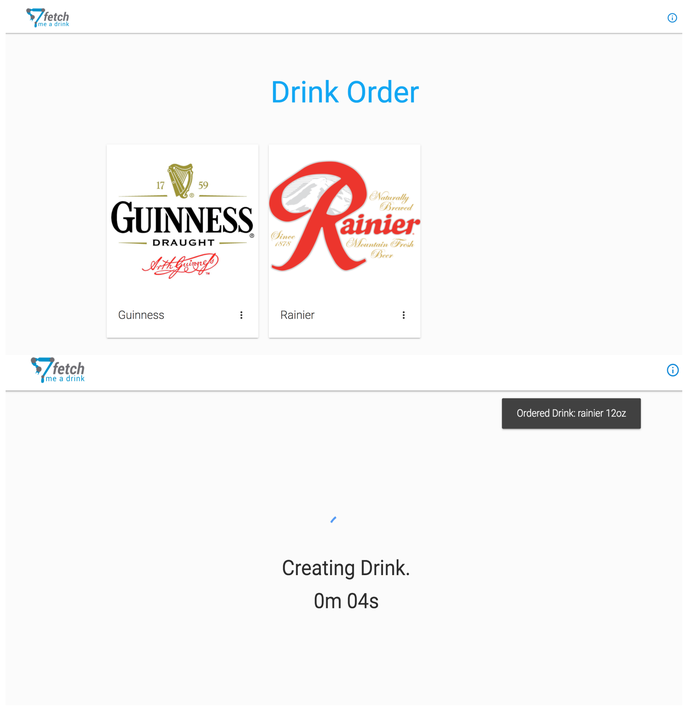

***Fig 1**: Frontend on Desktop*

WEB APP **ANDROID APP**

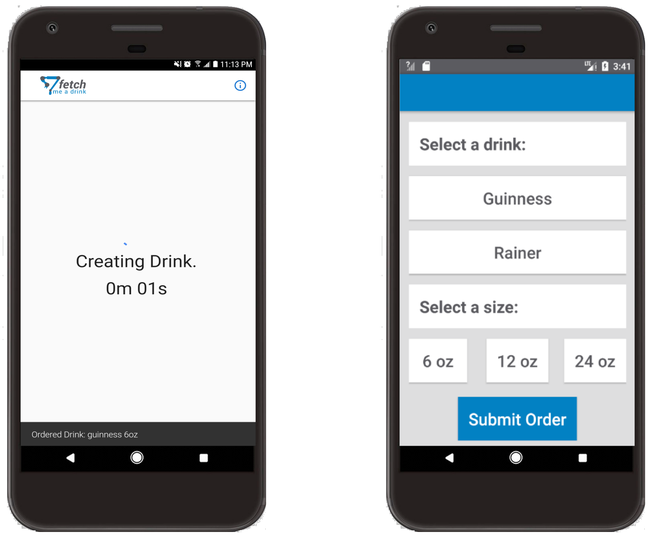

***Fig 2:** Frontend on Mobile*

PERCEPTION

Perception helps the robot identify the cups on the table allowing it grab the cup. The algorhithm segments the surface using RANSAC and identifies objects above the surface. The robot then recognizes the surface as the table and uses thresholds to group objects above the table as cups.

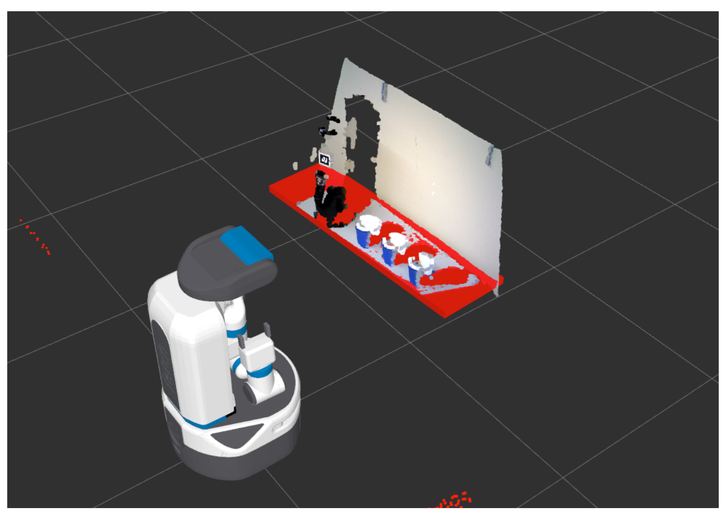

***Fig 3:** Perceiving the table in 3D*

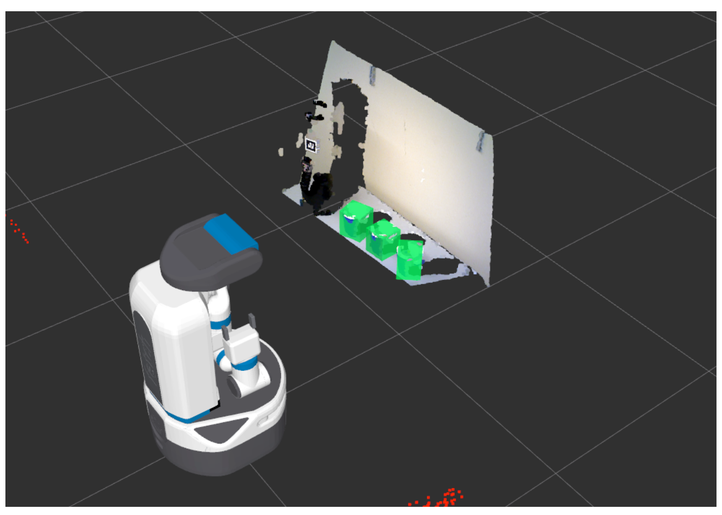

***Fig 4:** Perceiving the cups in 3D*

MOTION and NAVIGATION

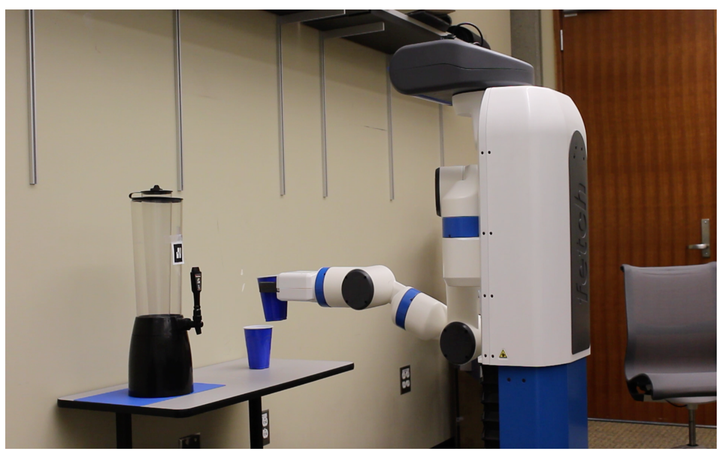

***Fig 5:** Lifting the cup from the table*

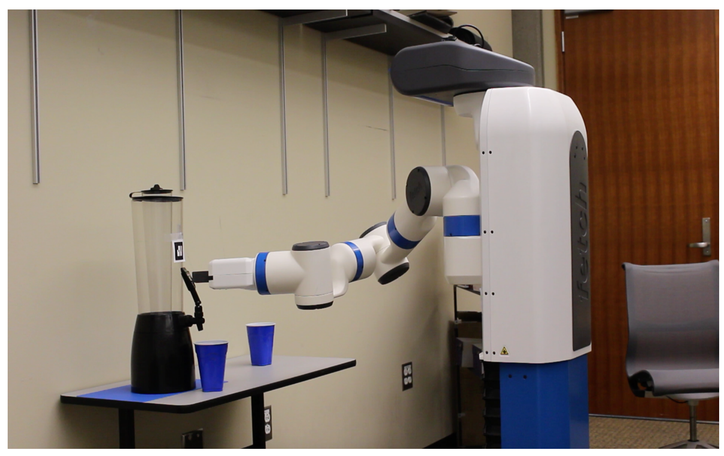

***Fig 6:** Operating the dispenser*

Motion planning determines the behaviour of the arm. It uses perception to locate the cups and fiducial markers to interact with the dispenser. These arm poses are programmed by demonstration. Navigation determines the robots base movement, allowing it to move between designated areas.

Becky Leslie Lingjiao Wang Carl Ross Xukai Liu Mahir Kothary