Automated Drink Maker

Group 55

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Problem

- Covid has caused a staffing shortage in restaurants
- We hope our device can lower the stress on the staff
- Also to help increase the customer satisfaction at these establishments.
Solution

- Automatic Drink Maker
- Controlled by a bluetooth receiver
- Rotary table for cup movement
- Liquid is gravity fed into the cups
- Cups are automatically dispensed onto the table
A cup drops before being rotated in order to be filled. It is then finally rotated to the last spot waiting to be picked up.
Preliminary Design

- Conveyor belt design
- Microcontroller
- Bluetooth remote
- Light sensor
Design

- Bluetooth allows communication
- Table spins cups into position
- Cups can drop one after another
- Can select multiple drinks
Block Diagram

120V AC

Power Input

AC to DC

Power Delivery

Wireless module

2 Buttons

Battery

Controller

Microcontroller

Light Sensor

Motor (Table)

Servo

Cup Dispensing

Servo

Solenoid

Solenoid

Soda Dispensing

120V AC

Data

120V DC

Wireless Data

This is all contained in the soda machine
Electronics Assembly

- Power supply
- Bluetooth module
- Microcontroller
- Uses 120V AC from the wall socket
- Transformer takes it down to 24V AC
- Diodes change from AC to DC
- The first voltage regulator drops the voltage down to 12V DC
- The second voltages regulator drops the voltage down to 5V DC
- DFRobot TEL0026 Bluetooth module
- Connect to Bluetooth terminal Android app
Cup Dropper

- Two servos to control the cup stack
- Bottom one drops the cup, top one reloads a cup into the bottom
- Controlled by PWM from the microcontroller
- Ran off of 5V power verified for RV
• Controlled by a DC motor
• Future models would implement a stepper motor for finer control
• Rests on ball bearings to limit friction and maintain flat angle
• Input to motor is 12V DC
Drink Dispenser

- Works with two solenoid valves
- Gravity fed system
- Allows choice of which drink from remote
- Amount dispensed based on time
Challenges

- Servo and table timing
- Microcontroller- Picaxe 18M2
- Bluetooth setup
- PCB
• There are a few issues we ran into with this preliminary design
  • DC motor
  • Proprietary Bluetooth adapter
  • Out of date microcontroller
• This proof of concept more than meets our expectations even with these shortcomings
• Further work
  • More drinks
  • Different cup sizes
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