

Autonomous Coffee Machine

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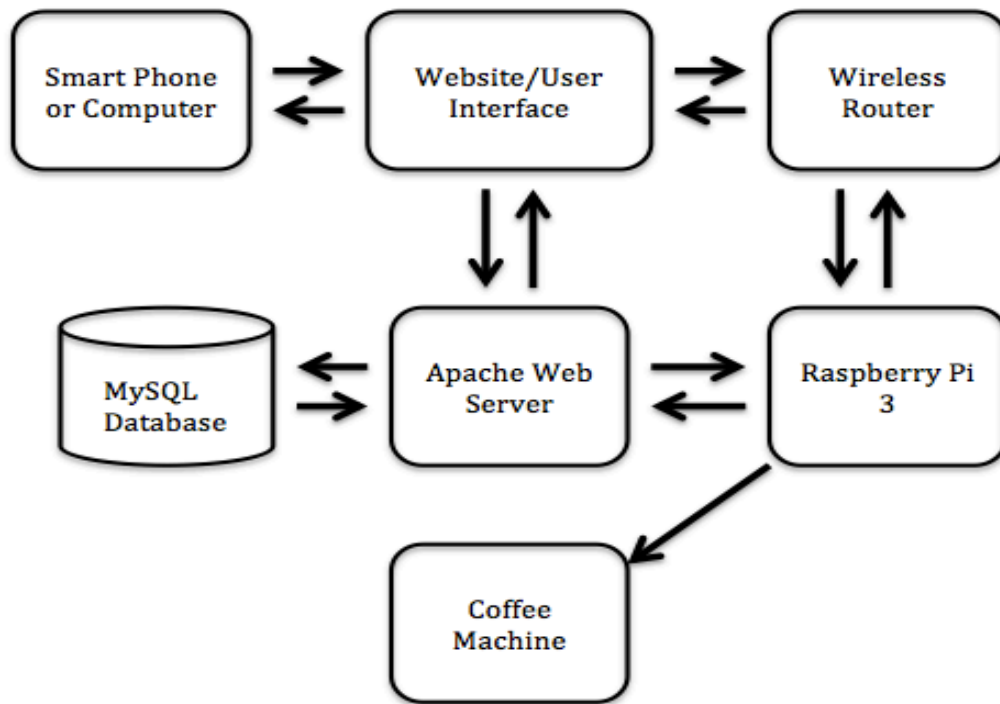
Product Description:

The Autonomous Coffee Machine enables people to be lazier and become more obese (I'm going to be rich). The machine is Wi-Fi enabled, and should be able to be controlled anywhere the user has a network connection and the machine has a network connection. The machine is autonomous in the sense that it is completely hands free with the exception that the filters need to be manually cleaned out every brew. With this machine the user will have full remote control of when and how they want their coffee brewed, eliminating the headache of setting up and waiting for your coffee.

Features:

- 1) Wi-Fi Enabled for remote control
- 2) Multi-Cup Brewing as a user option
- 3) Brew Strength as user option
- 4) Senses and prevents brewing when filters are dirty
- 5) Keeps coffee warm for the perfect amount of time
- 6) Database to store use information

Flow Chart:



Primary Market

Home Owners
Small Businesses

Secondary Markets

Large Corporate Offices
Gas Stations & Coffee Shops

Assumptions and Constraints

High Cost to Produce
Requires Wi-Fi network connection on both Client and Server
Size of machine must be compact

List of Technology and Subjects

Wi-Fi
Analog to Digital Conversion
Software as a Service
Hardware Design (basic circuitry)
Software Logic
Web Development
Interfacing Microcontrollers & Sensors
Mechanical Design

| Purchase Invoice | | |
|--|--|-------------|
| Component | Description | Cost |
| Raspberry Pi 3 | Microcontroller that controls coffee machine and hosts website with the user interface | \$34.72 |
| Micro SD Card | Hard Drive for the controller | \$10.00 |
| Mainstays 12-Cup Coffee Maker | Base Machine with functional components | \$10.84 |
| E-flite 5mm Prop Adapter | Prop Adapter to Connect the stepper motors shaft to something threaded | \$3.21 |
| Nema 17 Bipolar Stepper Motor (84 oz.in) | Stepper motor to precisely spin the carousel | \$13.99 |
| (2) Reusable Coffee Filters | Reusable coffee filters to hold the grounds and sit in the carousel | \$8.00 |
| 6MM x 130MM all thread rod | My way of extending the motor shaft to connect to the carousel. | \$2.19 |
| (2) 6MM Coupling nut | How I am connecting the all thread rod to the prop adaptor on the motor | \$1.98 |
| 6MM Wing nut | The wing nut is acting as the lower nut holding the carousel to the all thread shaft. | \$1.73 |
| 6MM Acorn cap nut | The upper nut holding securing the carousel to the all thread | \$1.67 |
| | Total Price | > \$60 |