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abstract:
Imagine having a machine that would allow you to have the perfect cup of coffee right in your own home or office, without ever having to trek to the coffee shop. A machine that allows you to specify exactly how you like your coffee with exacting detail and optional scheduling at which point it will flawlessly produce that beverage for you. A machine that can recommend new beverages based on your, and other users' past preferences.

There are plenty of machines on the market that claim to be fully automatic, but none are capable of going all the way from raw ingredients to a finished beverage without any intervention from the user. With current fully-automatic machines, the user still has to manually froth milk and dispense flavoring syrup; the machine only handles the grinding, tamping, and brewing tasks. These machines also provide a very limited scope of control to the user, giving them only a few options for dictating how they would like their coffee to be made. Finally, most of these machines have very limited user interfaces and few have an option for remote control from a more user friendly device, such as a smartphone or tablet.

Our product differs by focusing on automation, personalization, and user-friendliness above all else. Our machine will house all ingredients internally, receive instructions wirelessly, and will have an automatic cleaning mechanism. The minimization of human interaction allows us to have complete control of the brewing and mixing process, allowing us to make a consistent cup of coffee. This also allows us to operate the machine wirelessly, allowing for streamlined UI capabilities and scheduled events. Autonomous control allows you to monitor the machine's use, personal consumption habits, and ingredient consumption, while also giving the user the ability to tweak individual settings to make a personalized and reproducible cup of coffee.
The machine itself will consist of a series of boilers, chillers, and pumps as well as a specially designed chamber for automatically frothing milk. These components will be driven from custom heater and chiller control circuitry as well as an embedded linux controller. The physical device will be backed by some remote user-interface and a database for storing ingredient information and user data.