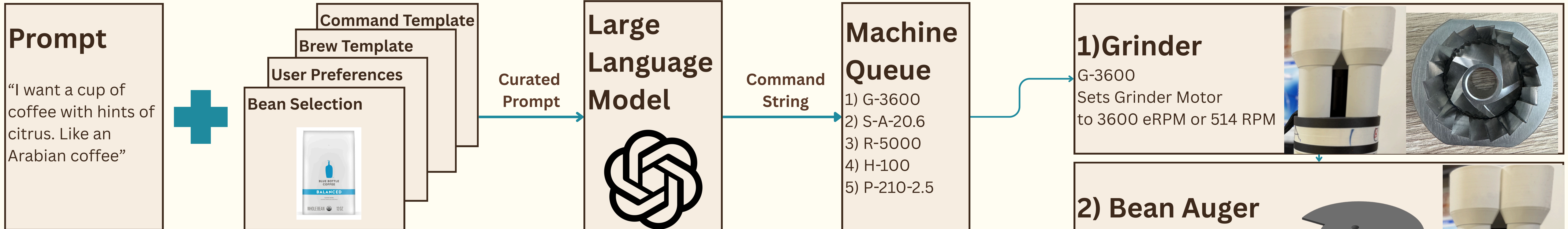


AI Coffee

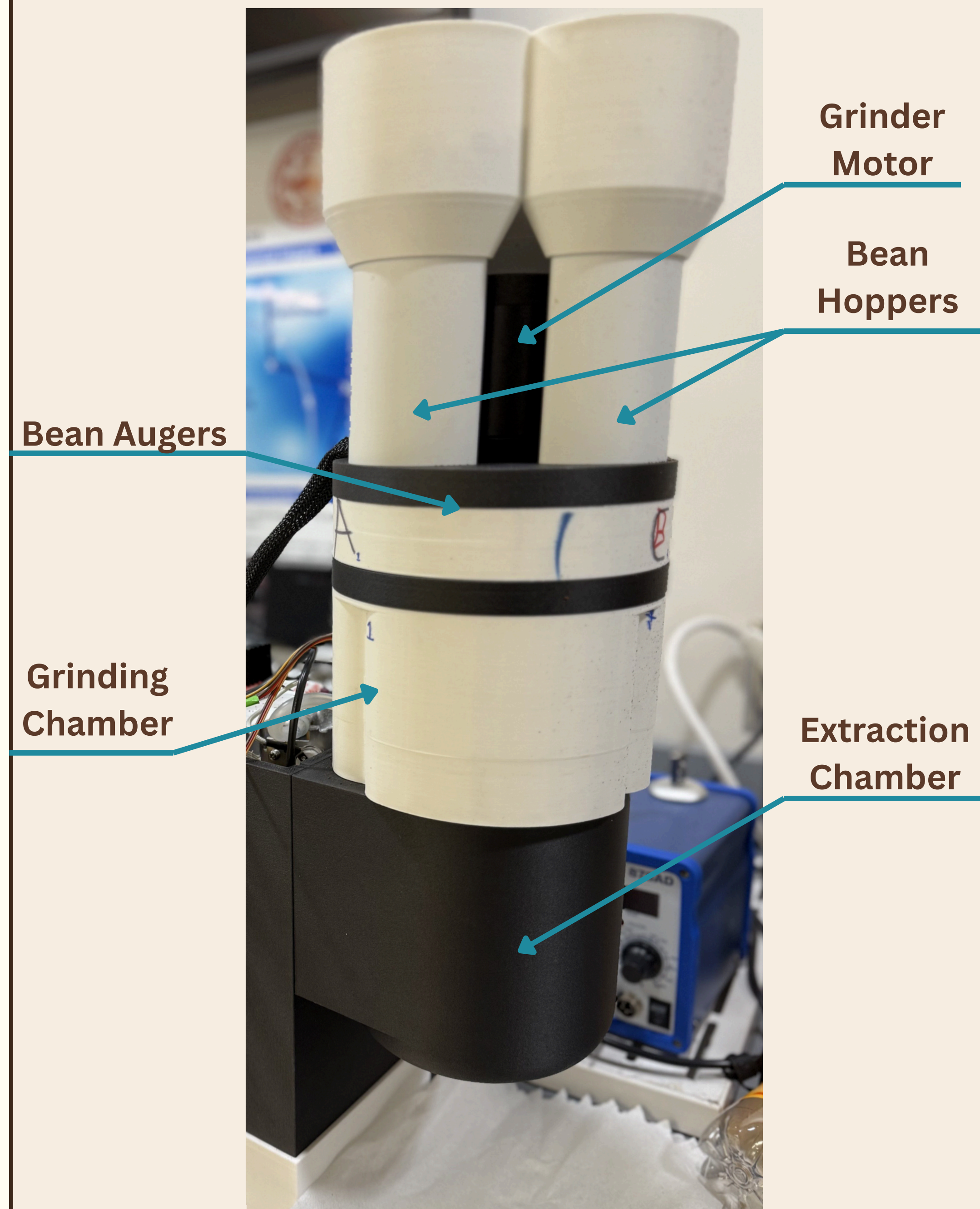
Prompt-to-Pour

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Electrical and Computer Engineering Department, Boston Univeristy

Machine Work Flow



Machine Diagram



Machine Story

Goals & Objectives

- Brew café-quality coffee from simple, natural-language prompts
- Independently tune grind, dose, temperature & pressure for flavor control
- Deliver an AI-mechatronics showcase in a single countertop unit

Key Performance Metrics

- Prompt-to-cup time 2 min 17 s (goal < 3 min)
- 20 / 20 blind tasters hit requested flavor notes
 - "fruity", "bold", "smooth"
- Dispense Coffee Beans +/- 1g
- Fit on a typical Kitchen countertop

Challenges → Solutions

- Food safety at 95 °C / 9 bar → FDA-grade 316 Stainless Steel + ABS + Food Safe Epoxy Coatings
- High-Torque grinder Grinder → 3KW motor with low KV
- Filter clog & strength → Laser Perforated 316 Stainless Steel
- Jitterily Pump Flow → Control with Feedforward + PID and Kalmen filter state estimator

Brewed Cup of Coffee

