Celeste: A Poker-Playing Robot

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What Problem Did We Try to Solve?

Playing poker involves strategic reasoning, physical interaction with objects (chips/cards), and human-like conversational behavior.

Goal: Create a fully autonomous poker-playing robot that can participate in a No-Limit Texas Hold'em match with a human.

Must handle rules, betting structure, movement, perception, and opponent modeling.

How Did We Approach the Problem?

Defined the game structure for the bot to understand the game

Used GPT for strategic decision-making and natural language interaction.

Implemented a Take Turn node to handle betting logic and game flow

Added a Pot Manager class to manage pot and stack sizes

What's the Most Interesting Part?

Integrating language-based AI (GPT) into a real-time physical system.

Designing a custom betting protocol with command parsing (`#taketurn`, `#updatepot`, etc.).

Observing how well GPT could play and understand instructions in the context of the game

Blending logic, mechanics, and communication for a cohesive game experience.

What Worked, What Didn't (v1)

What Worked:

- Robot correctly interprets game rules.
- GPT provides valid strategic decisions and commentary during the game.
- Pot size tracking with `Pot_Manager` prevents miscalculations mid-hand.

What Didn't Work:

- Parsing betting actions from GPT was inconsistent at times.
- Inconsistent chip/barrel handling and phantom barrel detection
- Inconsistencies in card recognition

How we extended the bot from initial demo to now (v2):

Improve the chip handling in order to achieve full autonomy.

Create a personality for the bot for a more interactive game experience.

Enhance GPT prompts for better consistency in game state handling.

Demo