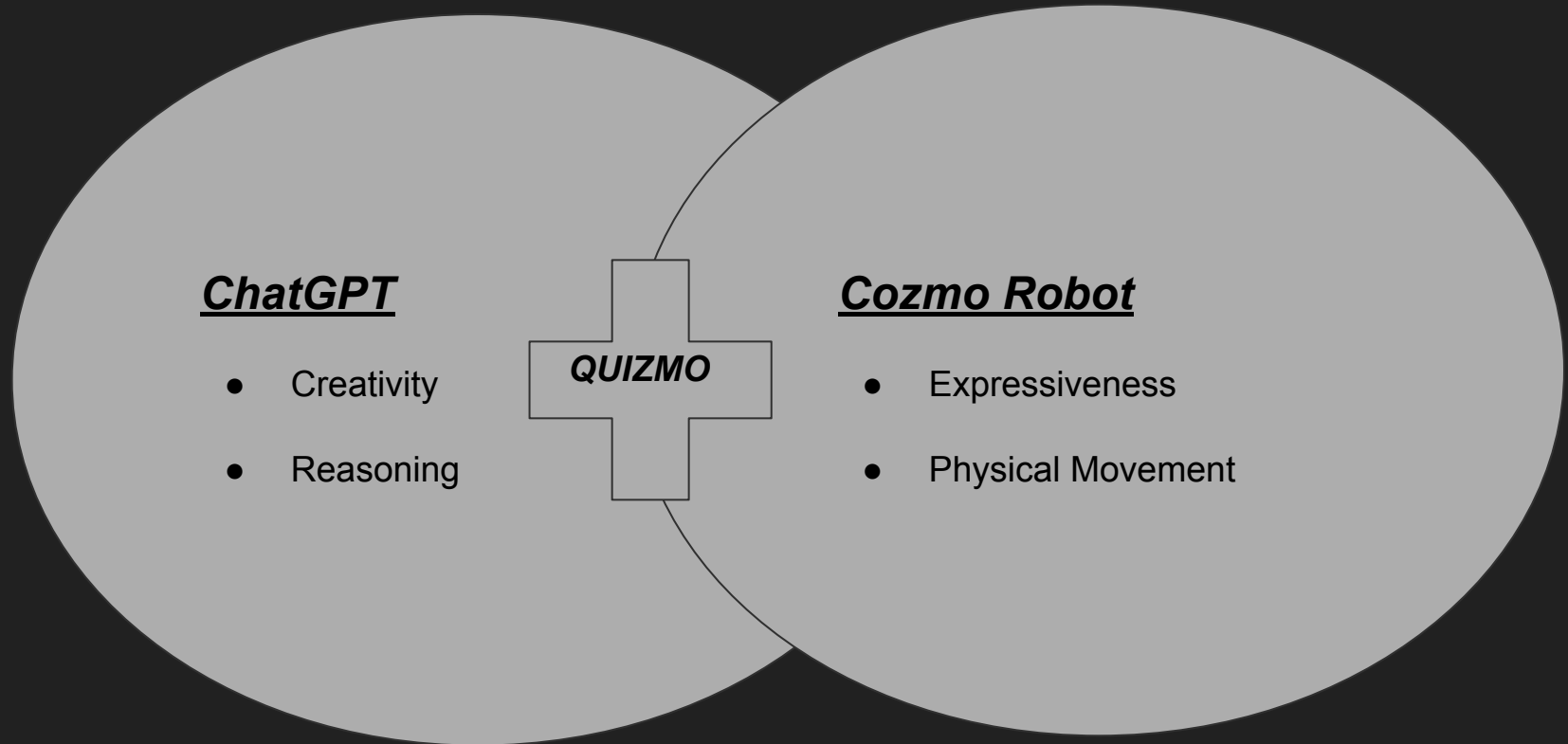# Quizmo

Thomas Rich

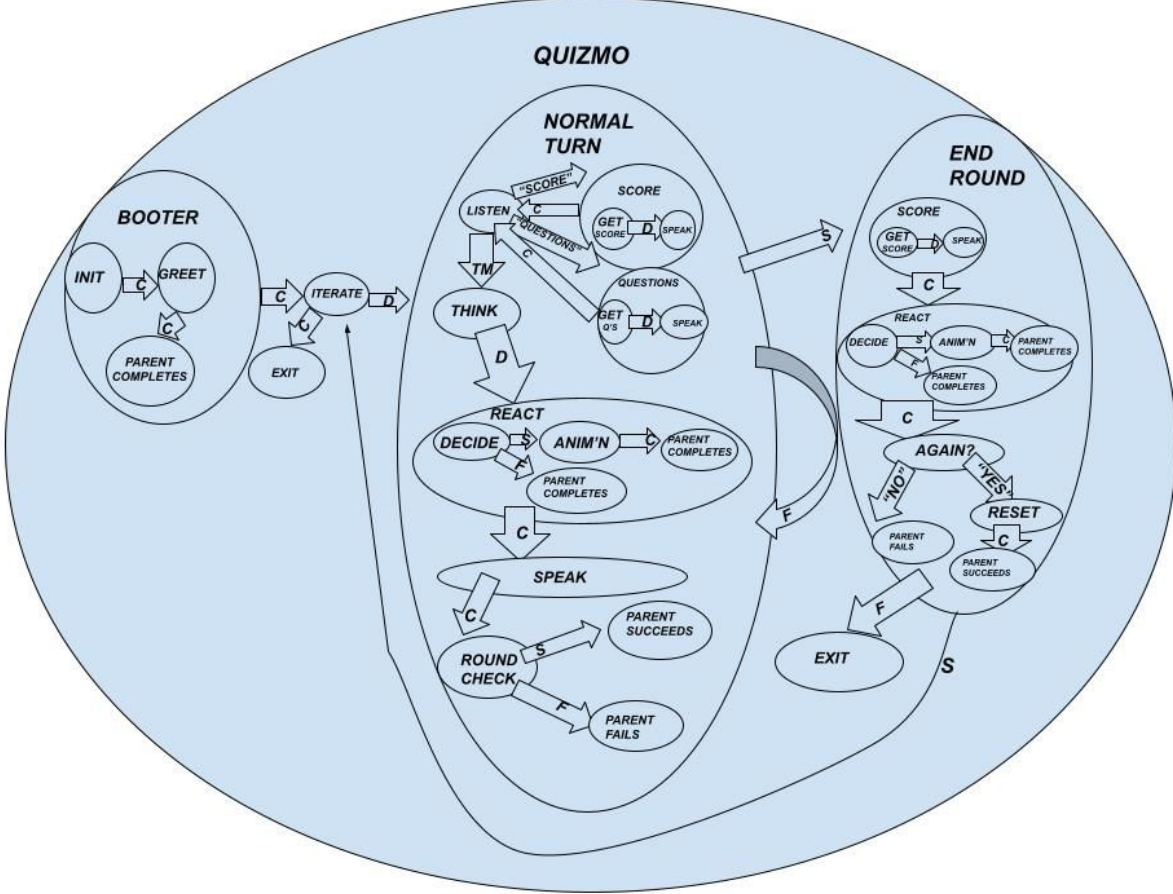# Project Ingredients

20 Questions with a Twist

- The classic game with animations added in!

- The robot emotionally reacts to how the game is going

Quizmo State Machine Diagram

State Machine Diagram, Explained

- Booter: initializes the program once (only when started from terminal)
- Normal Turn: nested state machine
    - Think: Single Chat-GPT instance that generates responses to user input
    - React: Animation-triggering state node; non-deterministically chooses animation based on game state and robot's "mood" (mood is manipulated by each response and its outcome)
    - Round Check: Analyzes game state to determine round completion (0 questions left, guesser got the answer right, guesser gave up)
- End Round: another nested state machine, this time clean up and prep for another round
    - Reset: State node that preps GPT to switch roles, along with resetting the question counter

Problems

A - GPT-3.5 isn't great at switching who is guessing after a round

B - Cozmo should react to the game as it's progressing, not randomly

C - What's a question, what's just conversation?

D - How do we know when a game ends?

Solutions

A - An explicit prompt naming the roles for the next game is fed into GPT automatically by the Reset node

Bi - Cozmo's emotions are adjusted in a specialized node, then an appropriate animation is chosen from a dictionary sorted by emotion and intensity

Bii - A reaction doesn't occur every time; the probability of an emotion playing increases as the round gets closer to its conclusion
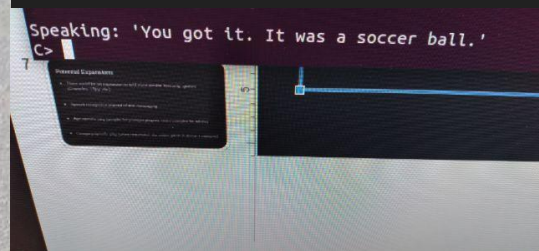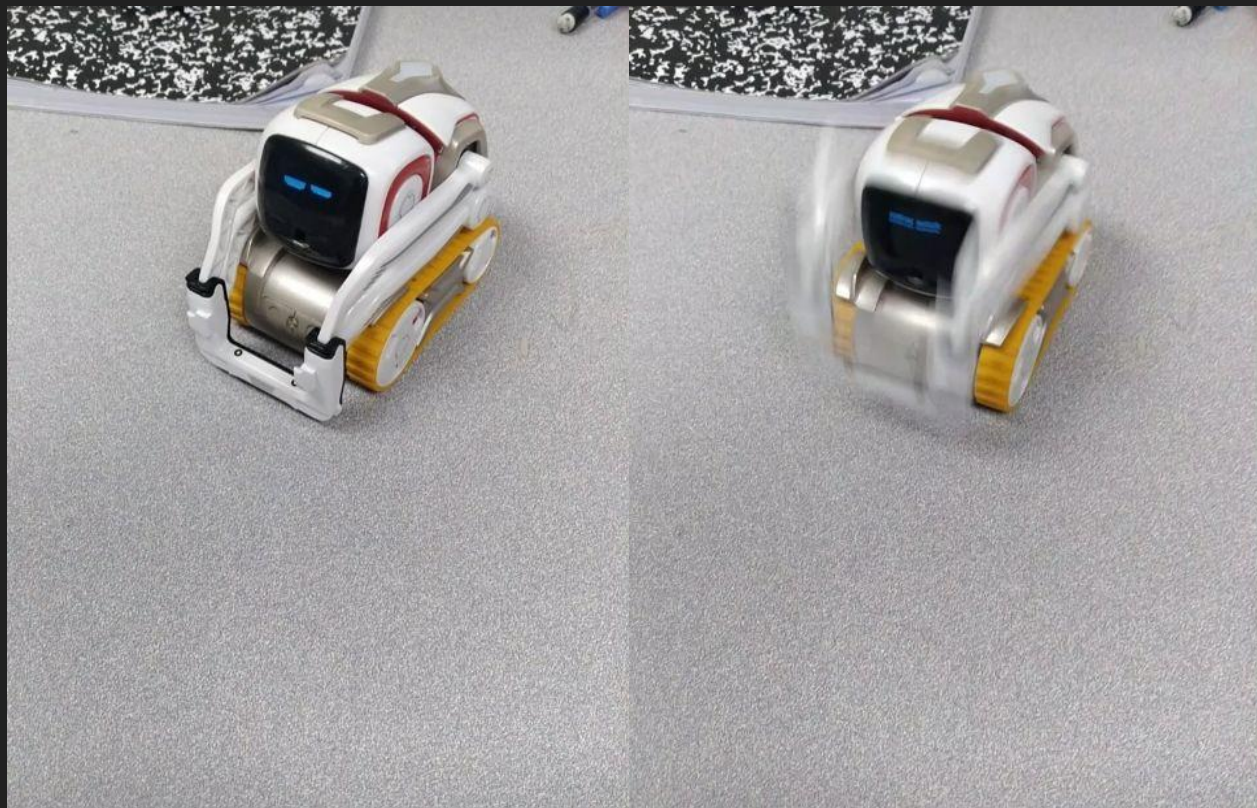
C - Questions are detected and the question counter is only updated when it is definitively a question, not mere conversation

D - Specialized node analyzes user inputs and GPT responses to see if the guesser won (easy to count to 20 if in guesser loses case)

Cozmo is Proud of You for Winning
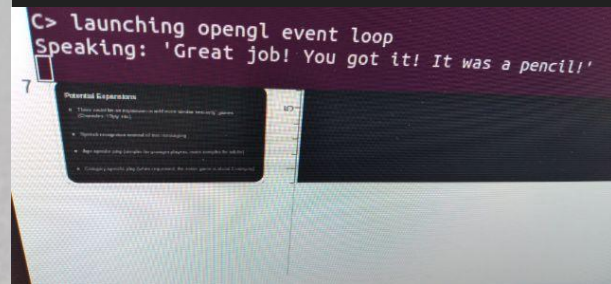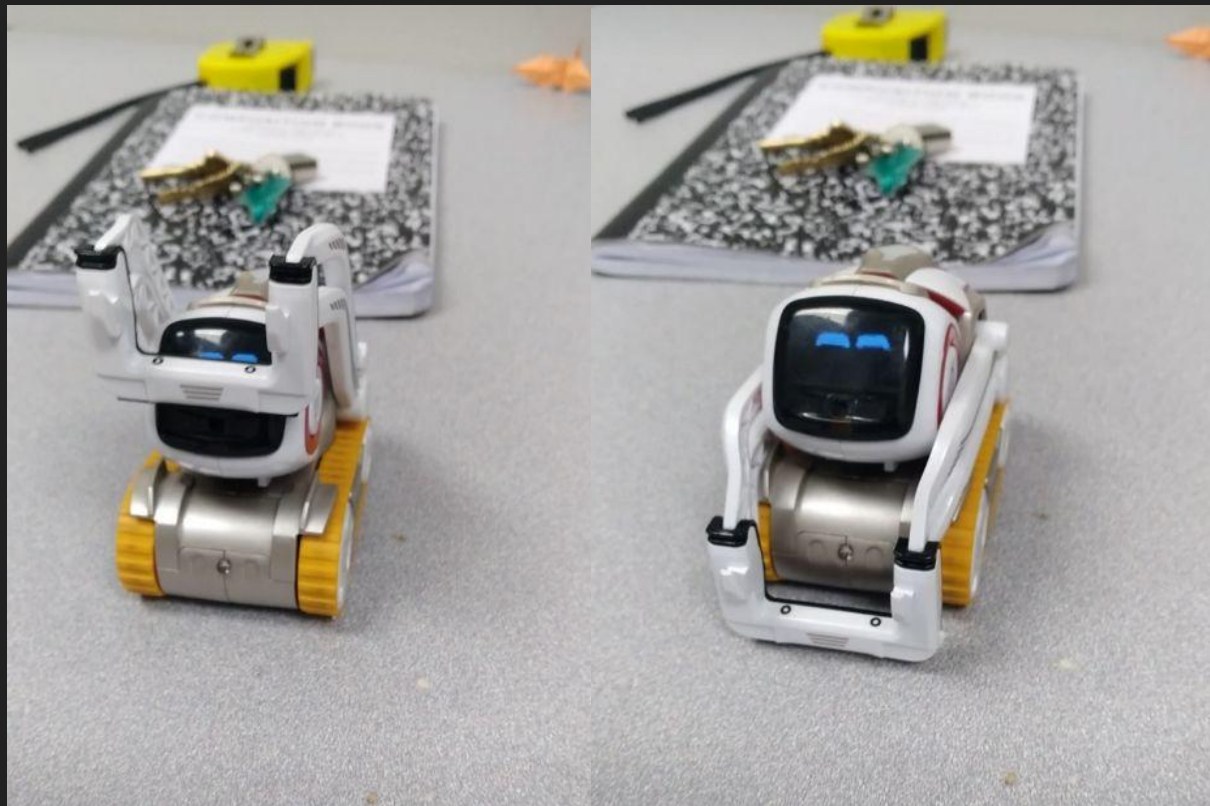
Cozmo gets Over Competitive

Speaking: 'You got it. It was a soccer ball.'

Potential Expansions/Future Applications

- There could be an expansion to add more similar 'text-only' games (Charades, I Spy, etc.)
- Speech recognition instead of text messaging (tried implementing this using Google's API, but it made everything so slow I went back to text only)
- Age-specific play (simpler for younger players, more complex for adults)
- Category-specific play (when requested, the entire game is about 1 category)
- Generalized emotional responses in robots (emotional state is manipulated by past & present events/conversation history; appropriate expression of that emotion chosen based on this new emotional state)

Demo

https://youtu.be/Gmdp9wvQ8dw