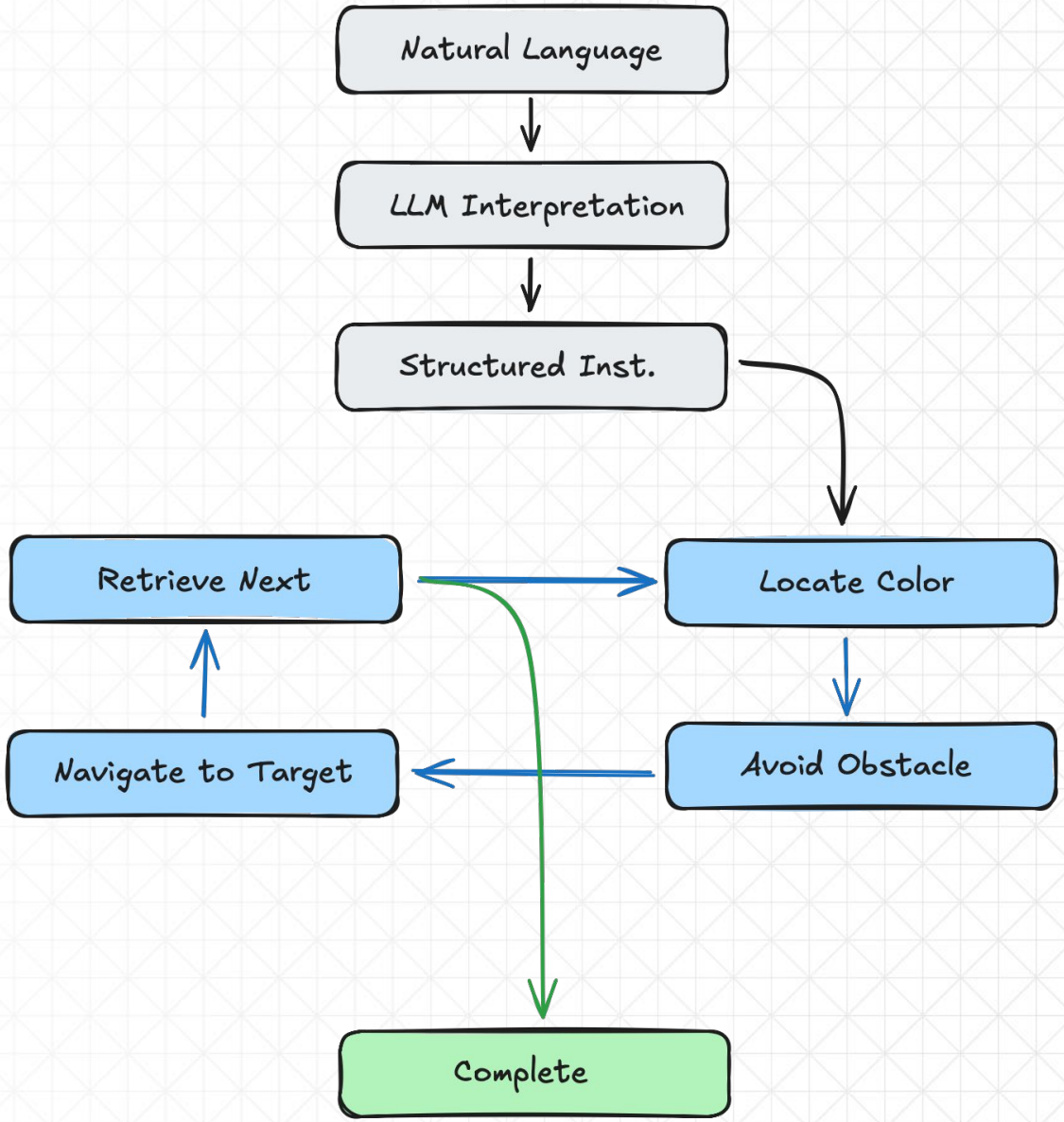
DeSPIn - DeepSeek PI Navigator

Autonomous Vehicles with John Deere

ILLINOIS JOHN DEERE

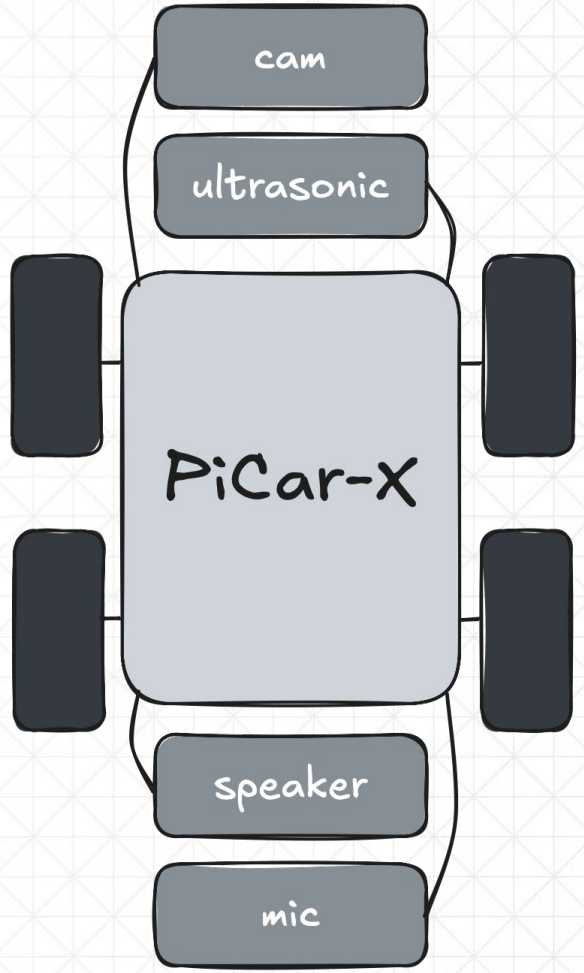
Inspiration & Goal

- Problem:
  - Configuring autonomous vehicles is complex and requires expertise.
  - Operators need an easier way to control multiple vehicles.
- Solution:
  - A vehicle that understands and follows spoken commands in normal language.
  - Eliminates the need for complex configurations.



How It Works & Challenges

- How It Works:
  - Raspberry Pi 4-powered car with:
    - Camera, ultrasonic sensor, servos, motors, and speaker.
  - Uses DeepSeek-R1 LLM for natural language processing.
- Challenges:
  - Hardware issues: Loose camera cables, unstable sensor readings.
  - Unexpected sensor behavior requiring adjustments.



Achievements & Future Plans

- Successes:
  - Converts speech to navigation instructions.
  - Navigates autonomously, avoiding obstacles.
- Next Steps:
  - Improve object detection for better tracking.
  - Optimize movement efficiency.
  - Add real-time voice command support.

Q&A

Let us know if you have questions about our project!