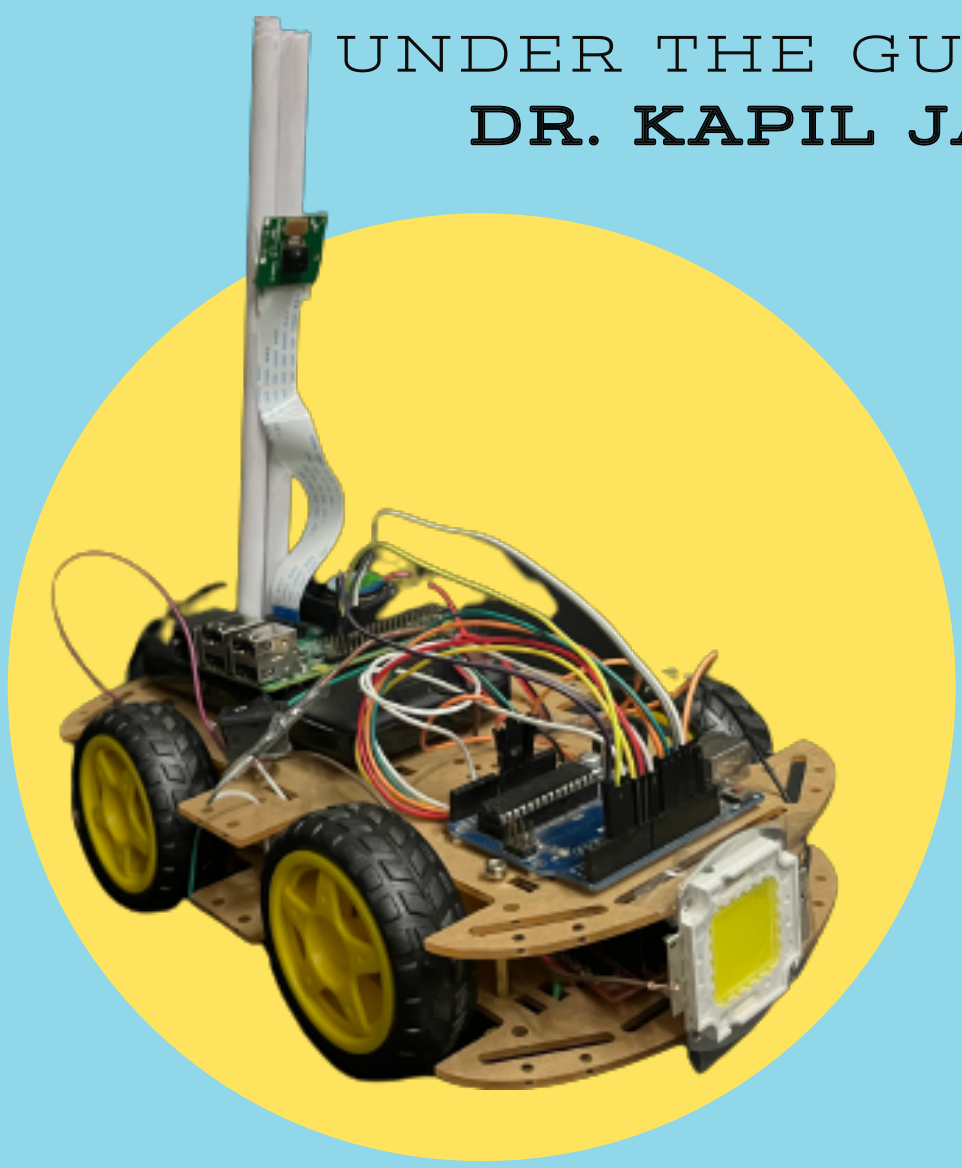
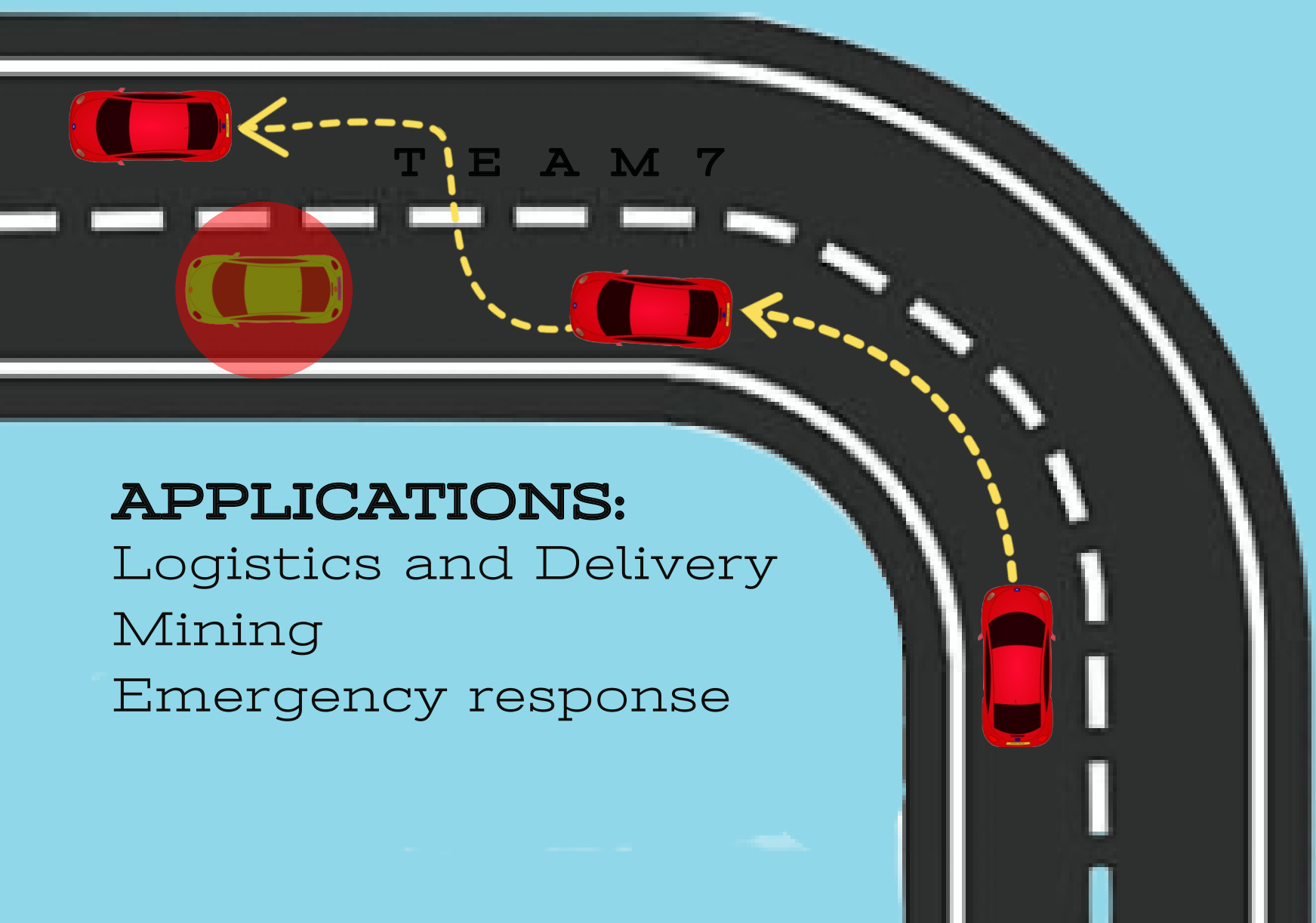
AUTONOMOUS MINI VEHICLE

UNDER THE GUIDANCE OF
DR. KAPIL JAINWAL



An Autonomous robot powered by Raspberry Pi and OpenCV-based computer vision algorithms for real-time obstacle detection and navigation. The robot is equipped with a customizable array of sensors and hardware components that allow it to analyze its surroundings, avoid obstacles and detect stop signs without human intervention. Our system utilizes advanced image processing techniques to detect and analyze visual cues, enabling the robot to navigate safely and efficiently through complex environments.

During lane detection, the video feed is processed, and perspective transformation, thresholding, and edge detection are applied to obtain a binary image of the lane lines. Then, it computes a histogram of the binary image to identify the positions of the left and right lanes and calculates the center offset of the vehicle from the lane center. Once the lane markings are detected, they can be tracked over time to provide information on the lane's curvature and the vehicle's position.



APPLICATIONS:

Logistics and Delivery
Mining
Emergency response