**Work Breakdown Structure**

1. **Project Management**
   1. Work Breakdown Structure (WBS)
   2. Roles & Responsibility Matrix
   3. Change Control System
2. **Reports / Documentation**
   1. Team Members and Project Proposal
   2. Project presentation
   3. Project Proposal Document
      1. Opportunity and Stakeholders
      2. Challenges Goals and Objectives
      3. Solution Overview with diagram
      4. Report Outline
   4. Literature / Market Survey
      1. Domain Expert Interview Findings
      2. Brainstorming diagram
      3. Academic Research Review
      4. Gap analysis summary
      5. Technology Landscape
      6. Specialization - 4 course series from Coursera
   5. Requirement Analysis
      1. Problem Scenarios
      2. Requirement Elicitation
      3. Functional Requirements
      4. Non-Functional Requirement
      5. Software requirement specification artifact
   6. System Design
      1. Architecture Diagram
      2. Use Case Diagram
      3. Detail Use Cases
      4. Activity Diagrams
      5. System Sequence Diagram
   7. Implementation
      1. Workflow Control
      2. Components and Libraries
   8. Testing and Performance Evaluation
      1. Test Scenarios
   9. Open House Event
      1. Presentation Material
      2. Standee design
   10. Conclusion & Outlook
       1. Future Recommendations
3. **System**
   1. Development Environment
      1. IDE
         1. Visual Studio Code
         2. PyCharm
      2. Version Control
         1. Git Hub
      3. Environment Management
         1. Anaconda Distribution
         2. Docker
   2. Simulation Environment Setup
      1. CARLA Simulator
         1. Carlaviz for CARLA Visualization
         2. Carlaviz Docker Container
      2. ROS Noetic Configured
      3. CARLA-ROS Bridge Integrated
      4. Vehicle spawn module
      5. Sensor spawn module
      6. Destroy Vehicle module
   3. Path Planning component
      1. Map Reading module
      2. Graph of Roads
      3. Graph of Lanes
      4. List of Driving Lanes within map
      5. Route Calculation module
      6. Global route planner module
      7. Local route planner module
      8. Environment Analysis module
      9. Trajectory Generation module
      10. Junction handling module
   4. Path Following component
      1. Trajectory Tracking module
      2. Basic agent module
      3. Behaviour agent module
      4. Controller module
      5. Throttle Control module
      6. Braking Control module
      7. Velocity Control module
      8. Steering Control module
      9. Custom Destination module
      10. Rotation and Translation module
   5. Obstacle Detection
      1. Sensor Data Processing
      2. Obstacle Detection
      3. Distance Estimation
   6. Obstacle Avoidance
      1. Sensor Fusion
      2. Path Adjustment
      3. Maneuver Planning
      4. Real-time Response