Controller for an Ackermann kinematic model

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Overview	**Methodology**
Objective: To create a Controller for an Ackermann kinematic model with a maximum steering angle constraint (e.g., < 45 degrees) having input robot target heading and velocity and output the steering and the two drive wheel velocities. We are adopting the Agile Development Software Cycle for this project and the tool is Notion for the same	The main objective of our project is to create a product that helps the system to create a Controller for Ackermann Kinematic model with maximum steering angle of 45 degrees. • We plan to have a working model which works in aligning the robot to the target heading and with a target velocity simultaneously. For this we would have different PID controllers for the tasks of getting to the target heading and target velocity. • As a backup we plan to have a simple closed loop controller for achieving the target heading and a PID controller for target velocity. Rather than having PIDs for each of the methods.
Challenges and Mitigation	**Milestones and Deliverables**
We plan to employ the PID controller for the velocity method. But while working with the steering method we intend to have the proportional, integral and derivative gain values of the PID that work in tandem to converge at the targeted setpoints. So, if we are unable to get that we plan to implement a basic closed loop controller for target heading and PID for target velocity,	We intend to create a controller for the Ackerman Kinematic Model and plot the same in GNUPlot after the project is done We plan to have the proposal along with the UML/Activity diagrams delivered as for Phase 0.