

# Design and Modification of Rack and Pinion Steering System

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**Abstract:** In this paper consist of improved work details with the design and simulation of rack and pinion steering using sphere gear. For the modification purpose they buy the old steering rack from garage. The concept has been developed to reduce the driver's effort during parking or maneuvering sharp curves. Steering ratio decides how far the driver has to turn the steering wheel to get the wheels to turn a given distance. Using the sun gear with the existing steering gear box, steering ratio can be changed and hence the input speed to the steering wheel can be altered when to the steering gear box. The main purpose of this project is to provide the methodology for design and manufacturing of manual rack and pinion steering system. According to the vehicle requirement for better maneuverability of the vehicle, an steering system of the vehicles designed for, the steering system will works well in every difficult road condition and provide maximum directional stability, pure rolling motion to the wheel with minimum turning radius. The objective of this project is to design efficient, durable rack and pinion mechanism. They used the SOLIDWORK software for design of sphere gear and rack after that manufacturing is also done according to the design and calculations.

**Keywords:** Rack, pinion gear, Design and simulation, tubular casing, tie rode, modification in steering gear.

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