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Design and Development of a Compact Hydraulic Lifting System for Portable Cranes

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Abstract: *The "Design and Fabrication of Hydraulic Portable Crane" aims to develop a compact, efficient, and versatile lifting device that can be easily transported and operated in various industrial and construction environments. The project focuses on utilizing hydraulic systems to enhance the crane's lifting capabilities while maintaining portability and ease of use. The crane features a robust frame, hydraulic lifting mechanism, and a manual control system that allows precise load manipulation. The design is optimized for both strength and weight reduction, using high-strength materials to ensure durability and safety during operation. The hydraulic system provides superior lifting power compared to mechanical cranes of similar size, allowing the crane to handle substantial loads. The portable design ensures the crane can be easily relocated and set up in constrained spaces, making it ideal for smaller job sites and locations with limited access. This project combines principles of fluid dynamics, structural mechanics, and material science to deliver a functional and practical solution for lifting applications in diverse sectors, including construction, warehousing, and maintenance..*

Keywords: Hydraulic system, Portable crane, Design and fabrication, Lifting mechanism, Construction, Fluid dynamics, Load manipulation.

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