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A Project Report on

"MECHANICAL PROPERTIES EVALUATION OF NATURAL FIBERS REINFORCED BIO-COMPOSITES & FABRICATION OF A BIO-COMPOSITE TELEPHONE STAND (ARECA FIBERS, SISAL FIBERS, COCONUT COIR AND JUTE MAT AS REINFORCEMENTS)"

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Project Report submitted in partial fulfillment of the Requirement for the award of the degree of Bachelor of Engineering in **Mechanical Engineering**

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ABSTRACT

The present experimental study aims at learning the mechanical behaviour of hybrid natural fiber composites. Samples of Areca fibers, sisal fibers, jute mat and coconut coir fibers reinforced Epoxy hybrids were manufactured using hand layup method where the stacking of plies was alternate and the weight fraction of fibre and matrix was kept at 40%-60%. Specimens were cut from the fabricated laminate according to the ASTM standards for different experiments.

Once the mechanical properties were evaluated a simple portable telephone stand was fabricated. The factors considered for the fabrication of the telephone stand were stability of the product, cost of production, ease of manufacture, reliability of service, ergonomic aspects, low setup time, and ease of transport.

The Areca fibers, sisal fibers, jute mat and coconut coir fibers were used in an effective manner, which otherwise are considered to some extent as a waste product.

The hybrid composites produced with these natural fibers can be used for household furniture applications and may replace the conventional metallic, non-metallic, wood, and plastic materials to some extent.