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FACULTY PUBLICATION

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Experimental investigation of morphological and mechanical properties of SiC-neem-coir fiber reinforced hybrid composite

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ABSTRACT

The present work is the novel investigation of a hand layup fabricated hybrid epoxy matrix composite with silicon carbide and neem-coir natural fibers as primary and secondary reinforcements respectively. The hybrid composites were fabricated at varying volume fractions of reinforcements to determine the influence of reinforcements composition on the physical performance of the resulting composite. The fabricated hybrid composites were characterized for mechanical behaviour by tensile and hardness tests. The fiber-matrix interfacial layer was examined by microscopy for morphological behaviour, and the composition was examined by energy dispersive X-ray analysis. The analysis revealed that among the three fabricated composite combinations, the hybrid epoxy matrix SiC-neem-coir reinforcement composite exhibited the peak tensile strength of 53 MPa and the Shore D hardness of 78.1. Enhancement in flexural strength was obtained for the hybrid composite with natural fiber volume fractions of 6% and 3% for neem and coir respectively. The morphological analysis revealed that silicon carbide as primary reinforcement was effective in improving mechanical properties of the composite, but with inconsistent property enhancements. The addition of neem-coir as secondary reinforcements in varying compositions exhibited bolstering effects on the mechanical properties of the composite and maintaining consistency of enhancement over various composition samples.

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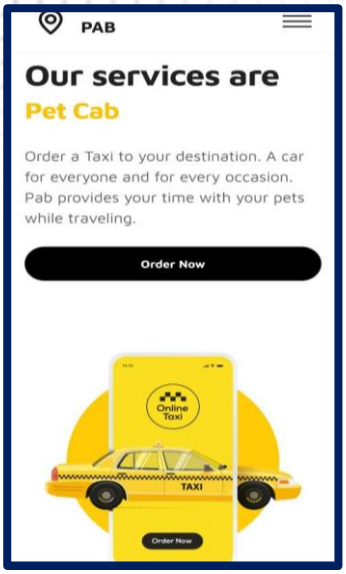
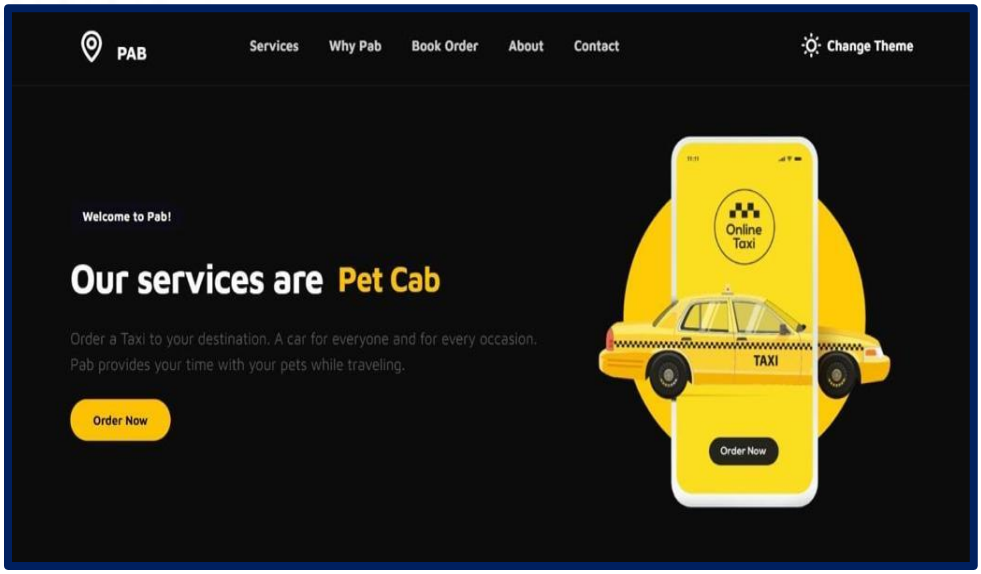
KEYWORDS
Neem and coir composite; mechanical; microstructure; ch

Dr. R. Pandiyarajan, Head, Department of Mechatronics Engineering has published a paper entitled **Experimental Investigation of Morphological and Mechanical Properties of SiC-neem-coir Fiber Reinforced Hybrid Composite in the Journal of Chinese Institute of Engineers**, DOI: 10.1080/02533839.2022.2078414 To link to this article: https://doi.org/10.1080/02533839.2022.2078414

ONLINE WEBSITE CREATION





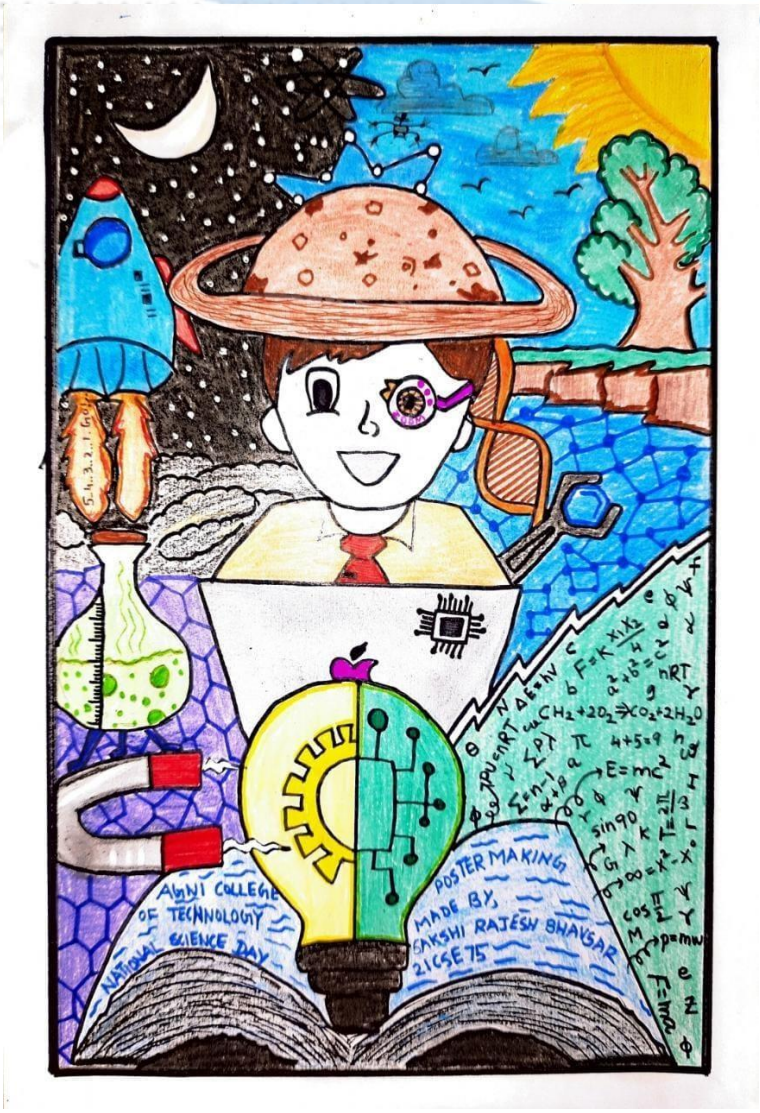
Mathumitha V and Keerthana D, III year students, Department of IT had launched MULTI PURPOSE DIGITAL VEHICLE BOOKING SYSTEM online website. It provides various services to the customers such as, booking any kind of vehicles via online. Customer can book any kind of vehicles for any purpose from anywhere. This integrated website effectively and efficiently automates manual procedures. URL: https://pab.mathumitha1.repl.co/

STUDENT REPOSITORY

Vidyasagar , III/MHT

Vidyasagar, III year student, Department of Mechatronics Engineering has portrayed his friend on his birthday through the realistic pencil art technique.

STUDENT REPOSITORY



Sakshi Rajesh Bhavsar, I year student, Department of Science and Humanities has exhibited her talent in Poster making with the theme **World is incomplete without Science**.

STUDENT REPOSITORY

Nithyasri. V. G, I year student, Department of science and Humanities has portrayed a famous painting **The Starry Night**.

STUDENT REPOSITORY

Prithiksha K, I year student, Department of Humanities and Sciences has displayed her talent in **Aari Work and a budding entrepreneur**.