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DEPARTMENT OF
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PENDING

(IN202311076111)
Planer electric connection using piezo in composite layers

NEED

Multilayer composites used in aerospace and defense often suffer from undetected internal damage. Existing sensors interfere with wave propagation and create voids—resulting in 30–40% false readings and structural weaknesses. What if the sensor could simply vanish into the layer?

TECHNOLOGY OVERVIEW

This technology introduces a planar connection method using flat conductive tape to embed piezo sensors without creating voids or abrupt shape transitions. It enables smooth stress wave transmission—critical for accurate internal damage detection in composite materials—without altering the host structure's integrity or introducing mechanical stress.

TECHNOLOGY KEY FEATURES

Same-plane piezo integration, void-free bonding, uninterrupted wave propagation, flat conductive tape connection, supports embedded sensing, avoids delamination, enhances composite durability, compatible with wireless data systems.

MARKET ANALYSIS

The global structural health monitoring (SHM) market is projected to grow at 14.5% CAGR, reaching $8.7B by 2033. India's aerospace composites and defense infrastructure retrofitting projects are key drivers. [Sources: ResearchAndMarkets 2024, IMARC Group]

Target Industries

Aerospace material integrators: For composite structural monitoring. Smart defense systems: For embedded sensor-based diagnostics. Advanced materials labs: For integrating health monitoring into new layered materials.

AT A GLANCE

SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production)

Read more here

Technology is available for licensing/ co-development.

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