



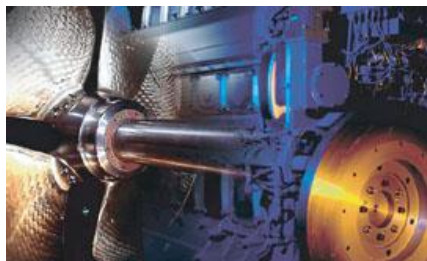
# Smart Damage Detection System

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# Project group

<b>Research Partners</b>	<ul style="list-style-type: none"><li>• VTT Technical Research Center of Finland</li><li>• Tampere University of Technology</li></ul>
<b>Industrial Partners</b>	<ul style="list-style-type: none"><li>• FY Composites</li><li>• Metso Paper</li><li>• Wartsila Finland</li><li>• Finnish Air Force</li><li>• Patria Aviation</li></ul>
<b>Co-operation Partners</b>	<ul style="list-style-type: none"><li>• Stanford University</li><li>• Acellent Technologies</li></ul>



[www.wartsila.com](http://www.wartsila.com)



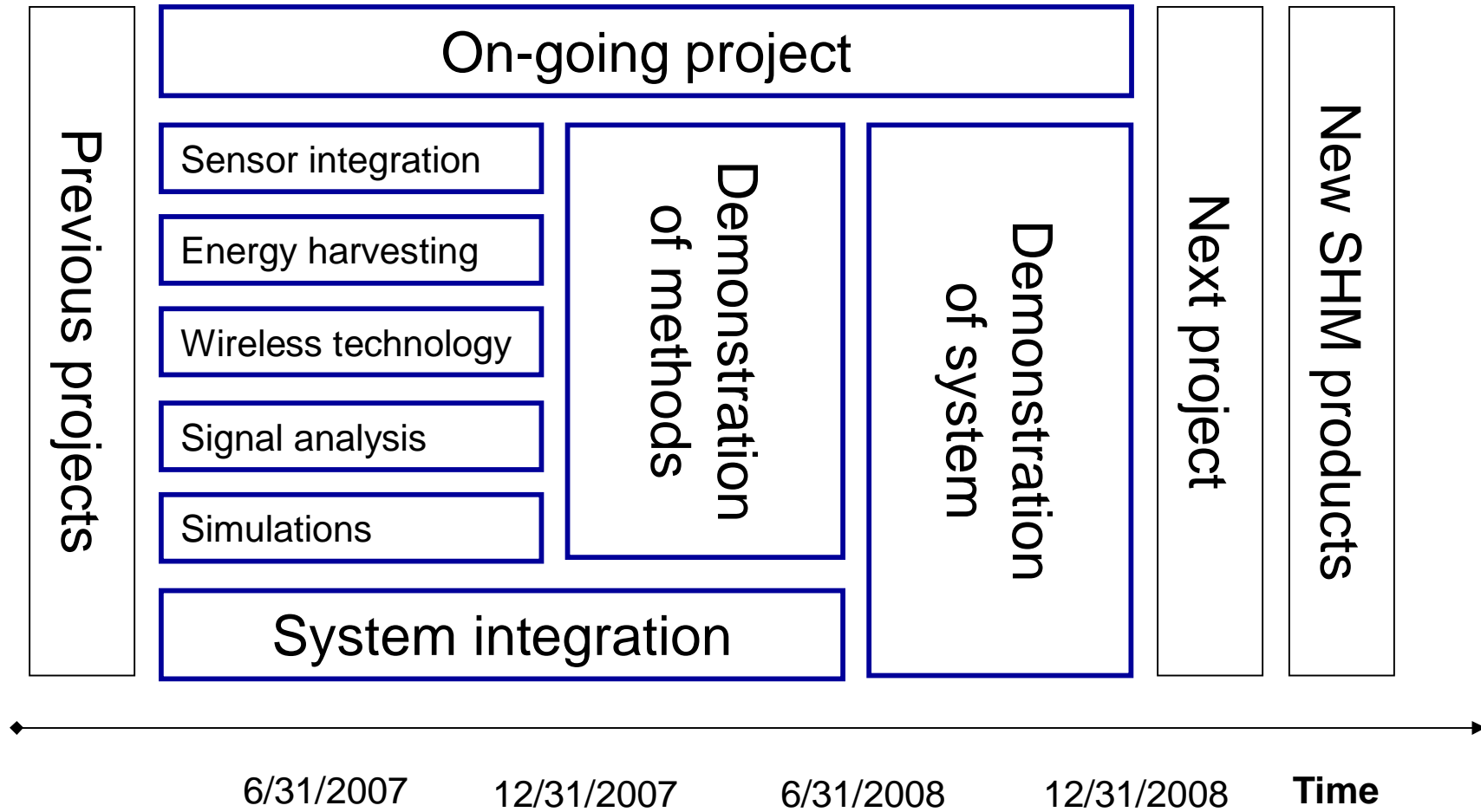
[www.fy-composites.com](http://www.fy-composites.com)



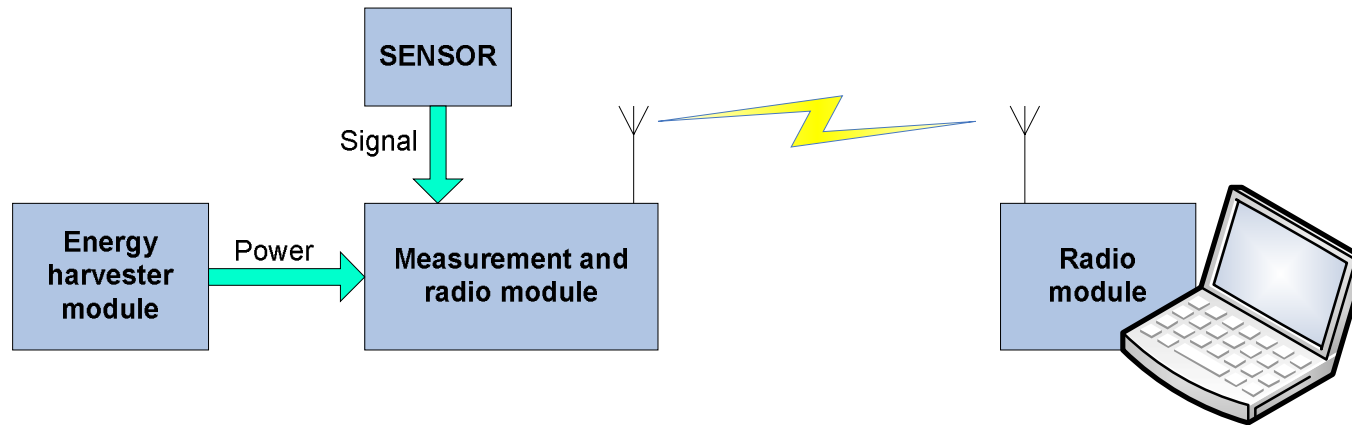
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# Master Plan



# Proposed SHM system



Proposed structural health monitoring (SHM) system utilizes piezoelectric actuator and sensor network. The measurement and radio module is boosted by an energy harvester module whenever some environmental vibration is present. Another radio module is connected to PC, where the sensor signal is reconstructed and analyzed.

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## Applications

The proposed structural health monitoring (SHM) system is designed for industrial applications, like power production (massive engines rotating generators), manufacturing industry (continuous production), and transportation (military vehicles, commercial trains and trucks).

## Industrial Cases

Current industrial cases under R&D work include SHM for composite ballistic protection, composite multi-layered structure and boron/epoxy patch on damaged high-strength aluminium structure.