A further aspect is a method for monitoring structural integrity of a repair made to a laminated structure made of composite material, comprising: (a) placing a sensor between layers of composite material of a repair patch, the sensor being capable of outputting data representing a current structural characteristic of surrounding composite material after the composite material has been cured; (b) curing the composite material while the repair patch is in contact with a repair site of a parent structure made of composite material to produce a repaired parent structure having an embedded sensor; (c) after the curing step, acquiring and recording baseline data from the embedded sensor which represents a structural characteristic of the repaired parent structure; (d) after the baseline data has been acquired and recorded, subjecting the repaired parent structure to loads; (e) acquiring and recording post-loading data from the embedded sensor at a time subsequent to or during step (d), the post-loading data representing a structural characteristic of the surrounding composite material; (f) processing the baseline data and post-loading data in a manner that identifies differences between the respective baseline and post-loading data indicative of structural change in the surrounding composite material; and (g) determining whether the identified differences indicate structural change to the surrounding composite material in excess of a specified threshold. Steps (e) through (g) are performed by a computer system.

In the method step (f) may comprise creating a baseline signature based on said baseline sensor data, creating a post-loading signature based on said post-loading sensor data, and comparing said baseline and post-loading signatures. The method may further comprise evaluating a current repair dispatch status based on the results of steps (e) through (g), and specifying an updated maintenance schedule that takes into account the current repair dispatch status. Advantageously, the method may include performing steps (a) through (g) for each of a plurality of repairs, and the output from respective sensors comprises respective post-loading data for respective repairs and respective sensor identification data for respective sensors. Advantageously, the laminated structure is part of an aircraft and is subjected to loads during flight of the aircraft. Preferably the method further comprises communicating the post-loading data

CLAIMS

1. A system comprising:

a parent structure (34) made of composite material and having a repair site;

a repair patch (32) made of composite material, said repair patch (32) being bonded to said parent structure (34) at said repair site; and

a sensor (10) embedded in said repair patch (32).

2. The system as recited in claim 1, further comprising non-volatile memory (2) embedded in said repair patch (32) and electrically connected to said sensor (10).

3. The system as recited in claim 1 or 2, further comprising an interface (4) unit embedded in said repair patch (32) and electrically connected to said sensor (10).

4. The system as recited in claim 3, wherein said interface (4) unit comprises a transceiver (8).

5. The system as recited in any one of claims 1 to 4, further comprising a power supply (6) supported by said parent structure (34) and connected to provide power to said sensor (10).

6. A method for monitoring structural integrity of a repair made to a laminated structure made of composite material, comprising:

(a) placing a sensor (10) between layers of composite material of a repair patch (32), the sensor (10) being capable of outputting data representing a current structural characteristic of surrounding composite material after the composite material has been cured;

(b) curing the composite material while the repair patch (32) is in contact with a repair site of a parent structure (34) made of composite material to produce a repaired parent structure having an embedded sensor (10);