Patent Disclosure - Smart Medical Implant
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Assignee - Intraglobal Corporation
Date - June 20, 2005

Invention

A method for manufacturing an implement which may be embedded in the human body and affixed to a skeletal member or members (one vertebrae or several vertebrae in unison) and which can be charged with a radio frequency from outside the body in a way which will retrieve information about stress factors imposed on the skeletal members by the device itself or by stress factors imposed on the device by skeletal members. The invention will monitor stress factors to the implanted implement and analyze and predict failure of the appliance in the areas of structural integrity and uniformity of the material composition of the apparatus.

Method

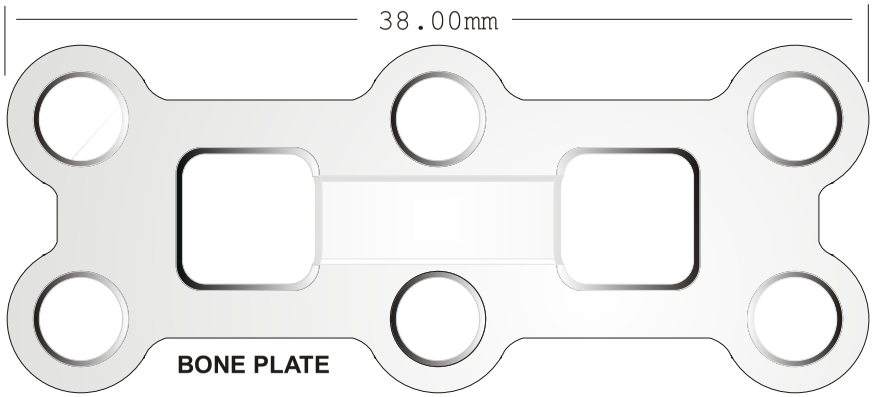
A plate is formed in a manner which may be affixed to a bone by screws or a similar device. The purpose of the plate is to add support to a weakened member of the human skeleton.

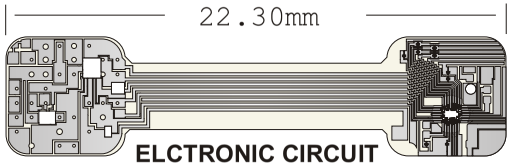
An antenna is affixed to the plate, preferably embedded in the edge of the appliance.

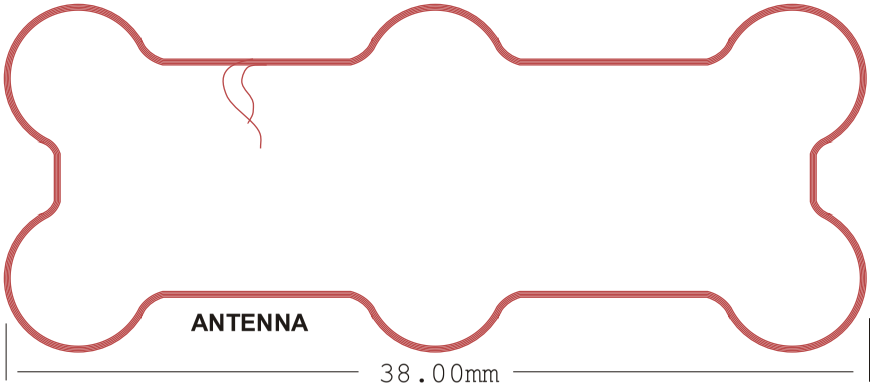
A flexible electronic circuit is fabricated which will fit into a recess in the plate. The circuit is engineered in a manner which will receive a signal through the antenna from a hand held source outside the body. The external power and signal source is similar to a bar code or RFID reader.

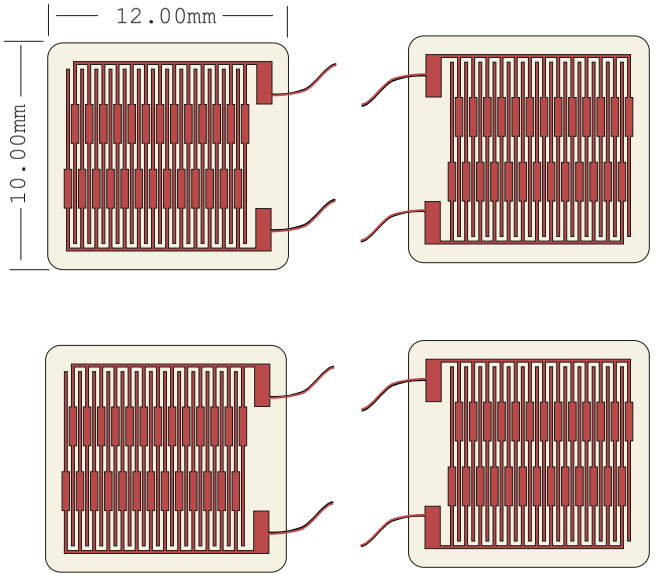
Integrated in the flexible electronic circuit is a strain gage or several strain gages which are affixed to the outside structure of the plate. The strain gages are typically a piezoelectric device which is capable of monitoring slight changes in the juxtaposition of the plate to the bone and quantifying the resulting stress factor.

The smart implant is activated by radio frequency imparted by a hand held reader. The energy from the reader is receive by the RF component in the flexible circuit and subsequently that signal is employed by a microprocessor which is monitoring the strain gages. The microprocessor samples the piezoelectric resistance of the strain gage and stores the information in memory. The external reader sends another pulse of energy to the implant and the data from the microprocessor is retrieved and stored in the external reader. Over a period of time an equation is derived which will predict the continued integrity or failure of the implant.

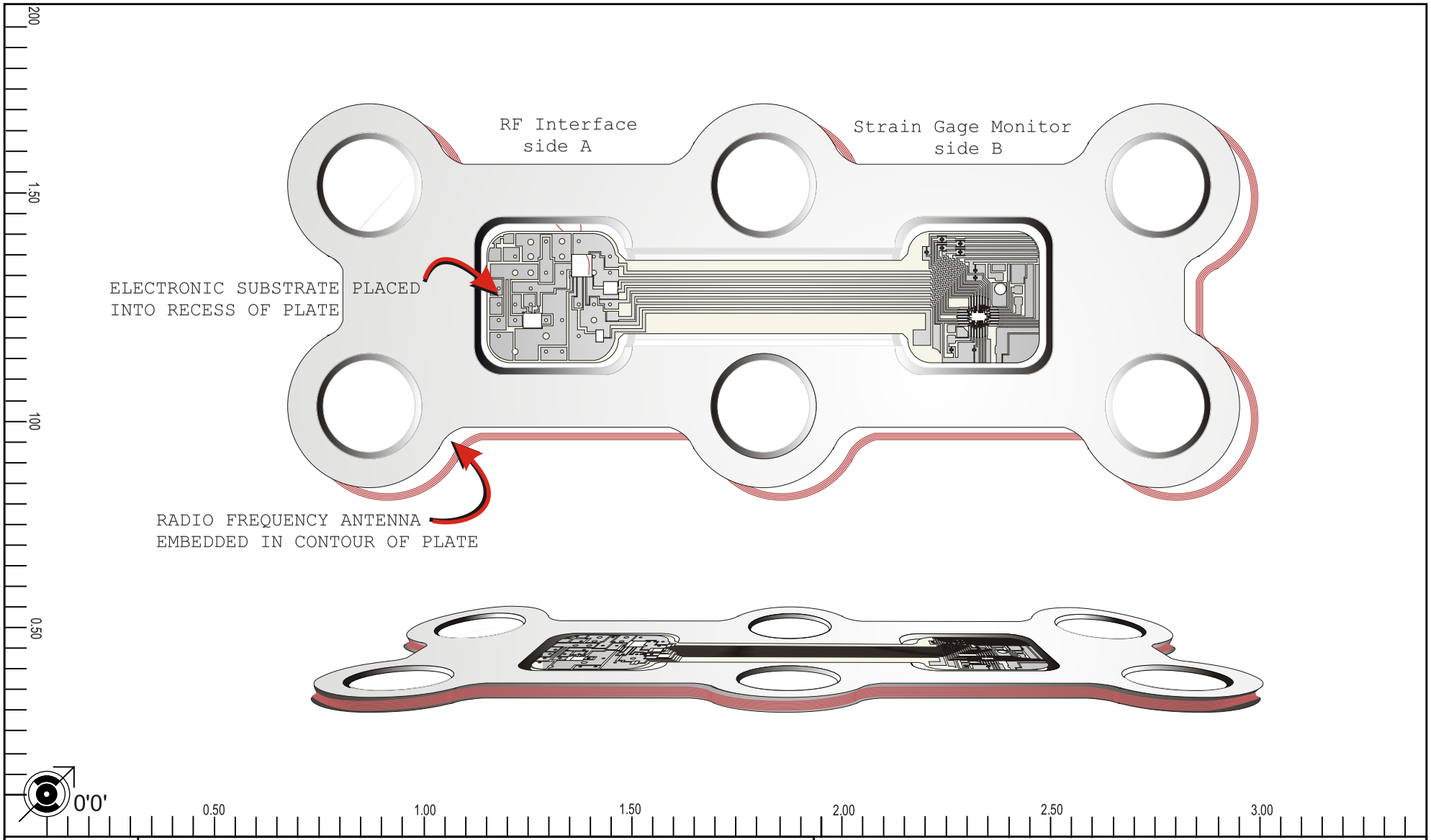




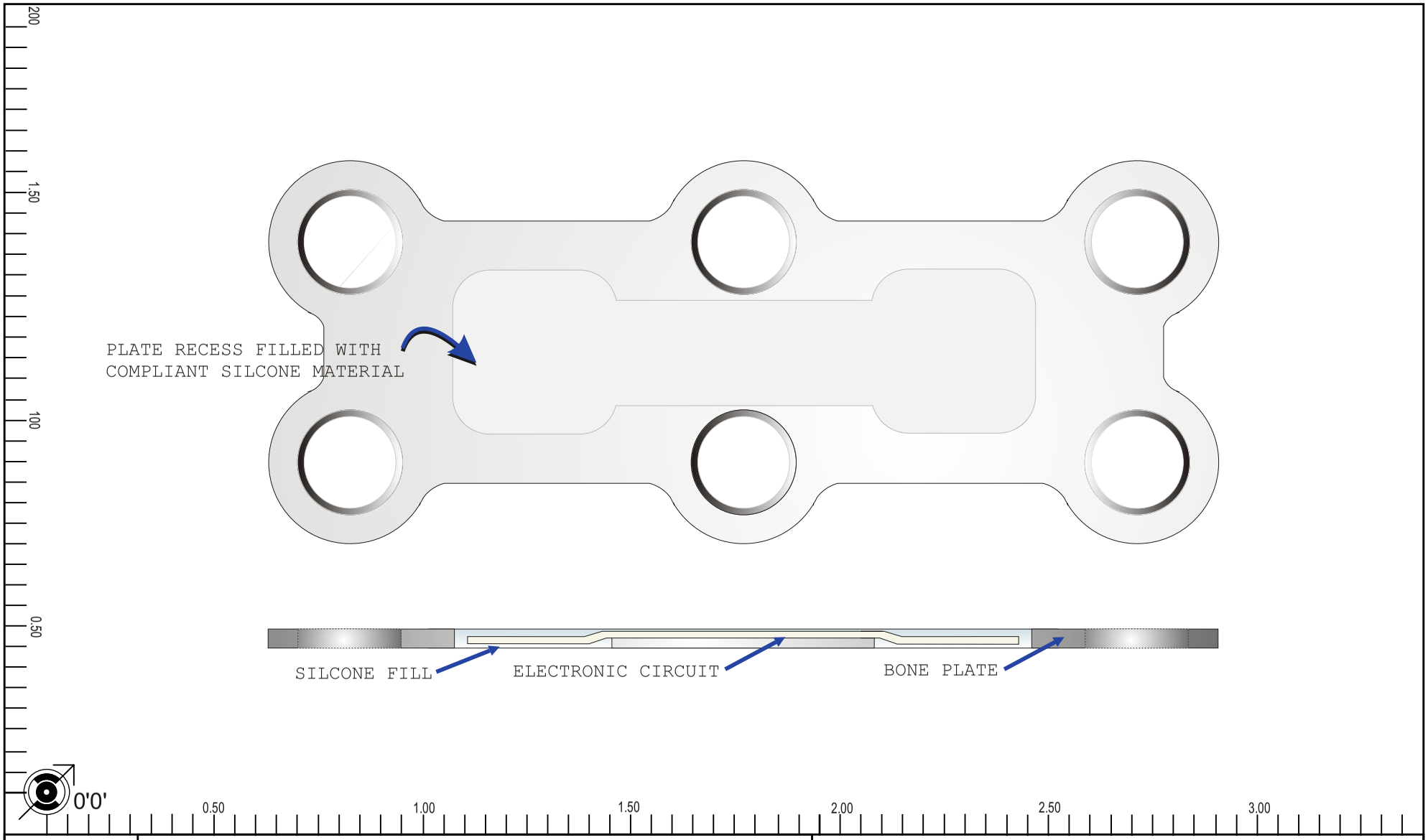




DOCUMENT NO.		
DL-0169A 2505	SMART CERVICAL IMPLANT - COMPONENTS	IntraGlobal Corp
MicroSite™ PATENT PENDING		625C SIMS INDUSTRIAL BLVD ALPHARETTA, GA 30004



DOCUMENT NO. DL-0169B 2505	SMART CERVICAL IMPLANT - CONSTRUCTION MicroSite™ PATENT PENDING	**IntraGlobal Corp** 625C SIMS INDUSTRIAL BLVD ALPHARETTA, GA 30004



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SMART CERVICAL IMPLANT - COMPLIANT FILL

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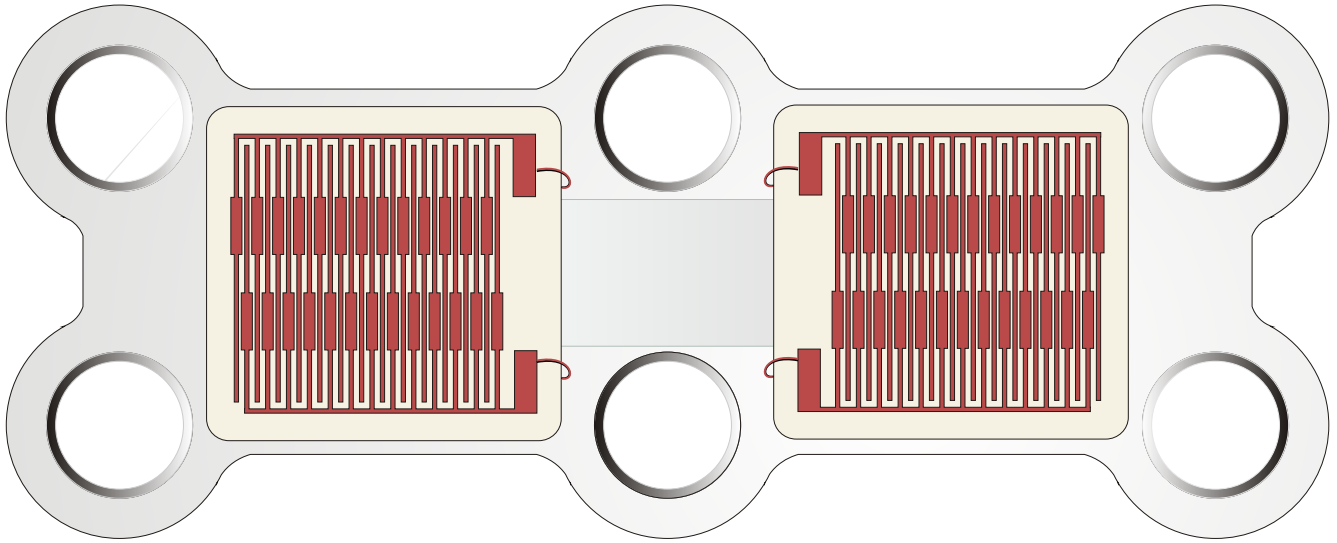

STRAIN GAGE LAMINATED TO BOTH SIDE OF PLATE

DOCUMENT NO.
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2505

SMART CERVICAL IMPLANT - STRAIN GAGE APPLICATION

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