

ABSTRACT**METHOD FOR ADDITIVE MANUFACTURING OF A 3D MECHATRONIC OBJECT**

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The invention relates to a method for manufacturing a 3D mechatronic object having predetermined mechatronic functions, which includes as components at least one sensor and/or one actuator, an electronic circuit connected to the sensor and/or to the actuator via electrically conductive tracks, these components being positioned in a main mechanical structure, and which consists of multiple polymers having various electronic and/or electroactive properties, characterized in that it includes the following steps:

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- determining said polymers according to their melting temperature, their chemical compatibility, their electrical and/or electroactive properties;

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- determining a 3D digital model of the object, including its shape and the routing of the tracks, on the basis of predetermined mechatronic functions of the object, properties of said polymers and specifications of the object;

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- 3D-printing the sensor and/or the actuator, the electronic circuit and the main structure in the same modeling steps according to the generated model by depositing layers of said molten polymers, certain layers being made up of a plurality of polymers, the layers being deposited by means of at least one head dedicated to a base polymer (1) and coupled to a doping mechanism (2) capable of injecting charged particles into the base polymer by interstitial doping so as to obtain the various polymers.

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No figure