



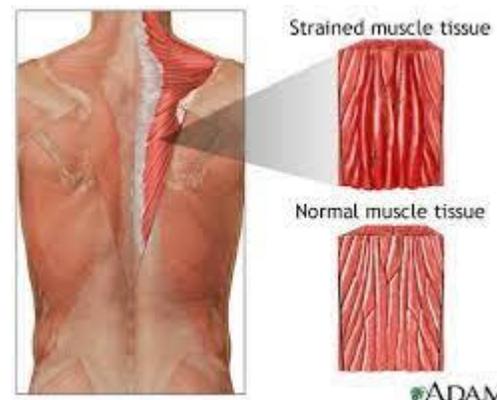
HEALTH / Medical & Pharmaceutical Biotechnologies

Shape memory active elements for medical recovery systems: SMARS

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2022

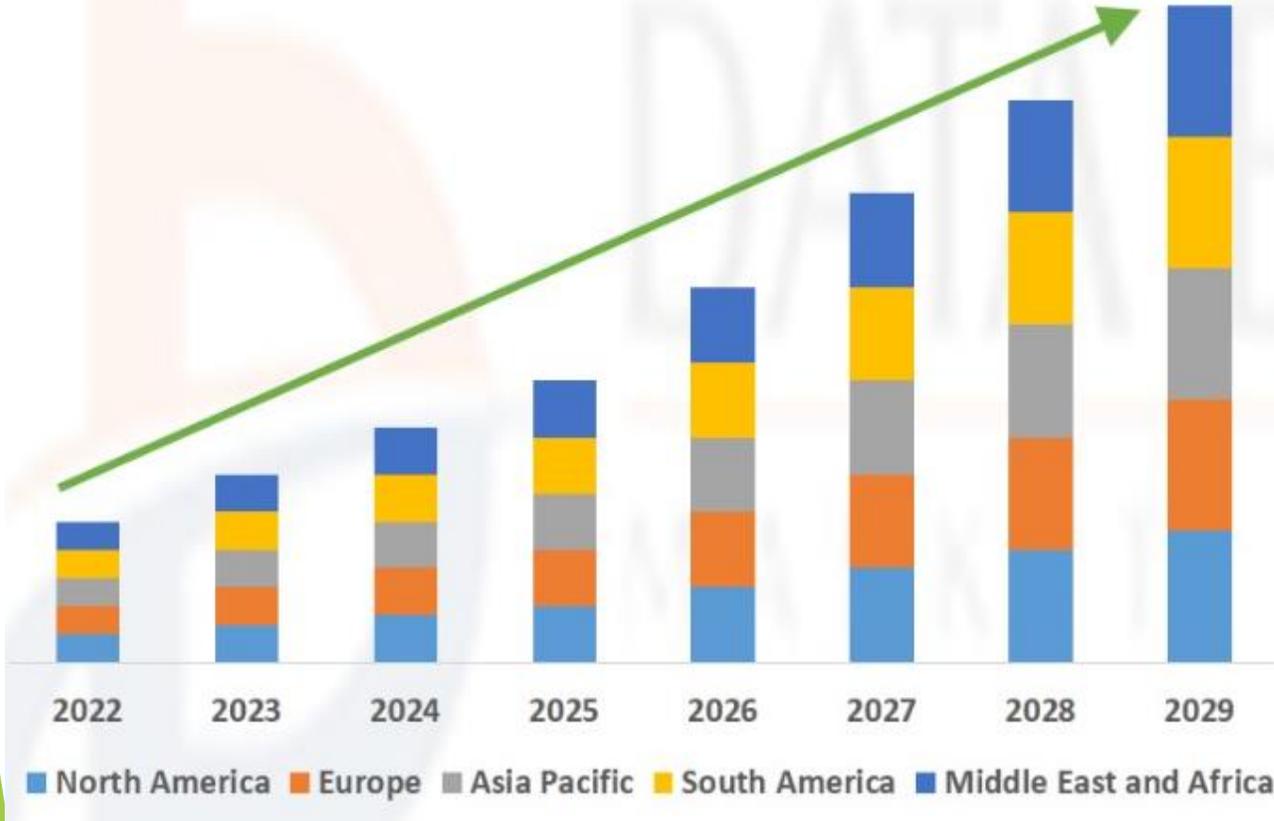
We want to improve the activation system of recovery equipments by replacing the actual activation system (**problem**: usually noisy engines, large dimensional and energy-consuming)



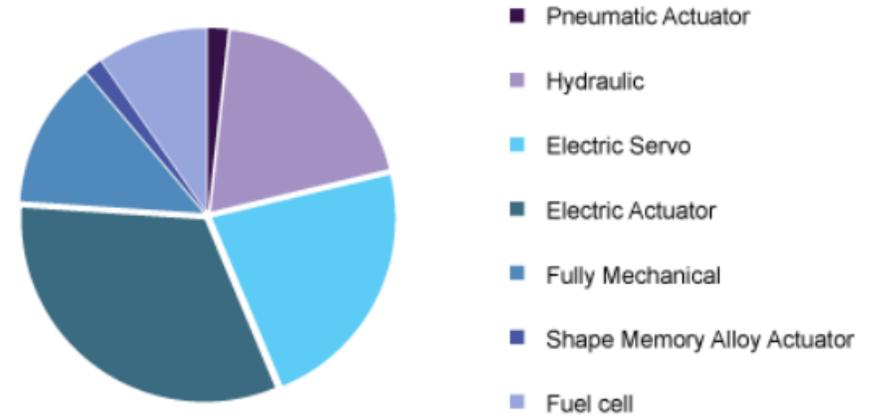
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Market

Global Medical Robots Market is Expected to Account for USD 34,470.62 Million by 2029



Exoskeleton market share, by drive type, 2016 (%)



Globally, in 2019, there were 178 million (95% UI 162-196) new fractures, 455 million (428-484) prevalent cases of acute or long-term symptoms of a fracture.

From a meta-analysis of 113 studies, the pooled cost for treatment in hospital for a hip fracture was estimated to be US\$10 075, and total health and social care costs for one hip fracture after 12 months amounted to a global mean of \$43 669.

The market worth hundreds of billions of dollars in time.

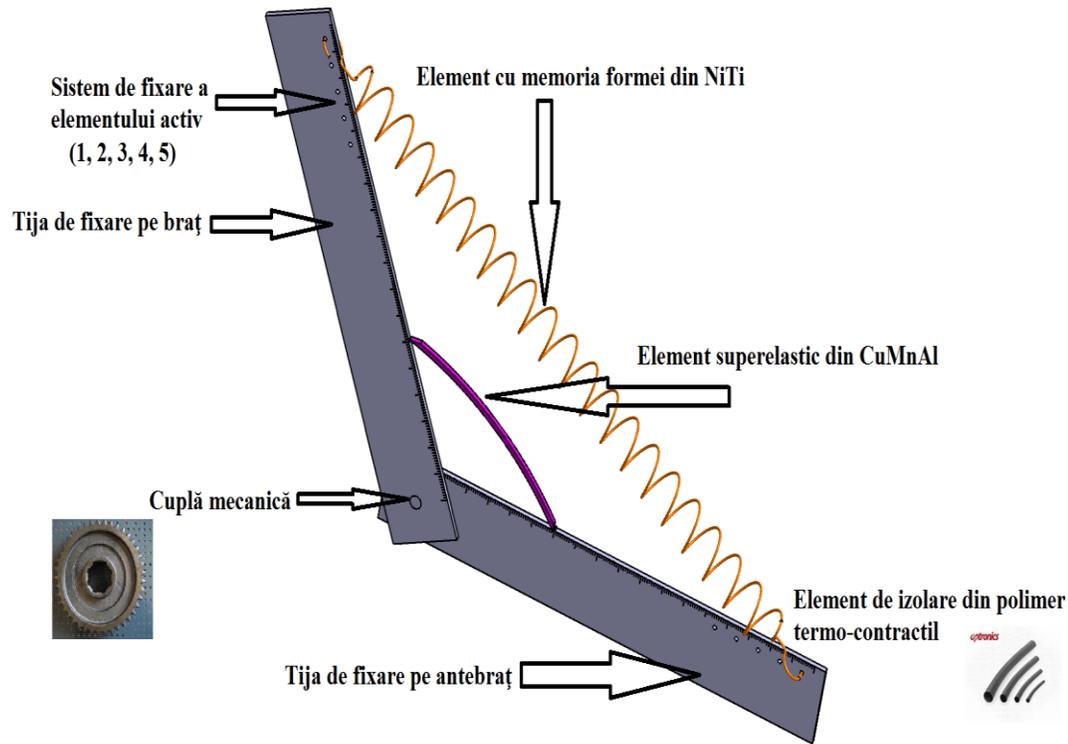
Trauma recovery systems represent a Fast Growing Market especially in developed countries

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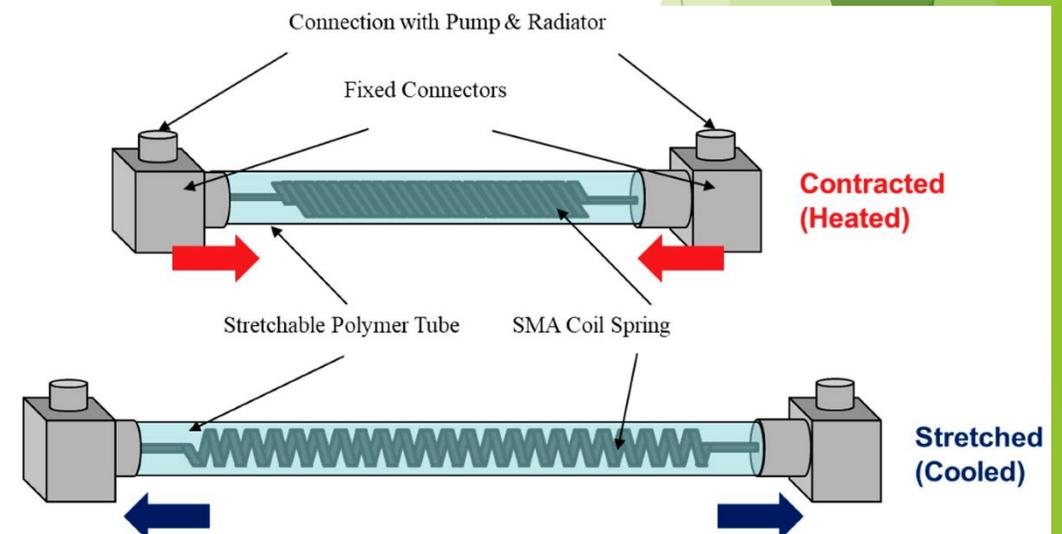
[Disaster Recovery Systems Market Share 2022 : Global Business Opportunities with Challenges, Explosive Trends and Size, Demand by Regions and Growth Analysis to 2028]

- Our solution is: usage of **Shape Memory Alloy** elements (wires, plates etc.)



We want to replace the motorized actuating system with a more silent, more precise and easier to control system based on Shape Memory Alloys

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Alternative solutions (heavier, noisier, more expensive, low energy efficiency)



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Model of business - in progress



What we provide:
Shape memory elements
(wires, plates) for any action
part of the recovery systems
all ready sold on the market ,
adaptive control and
maintenance

How do we sell? (partners:

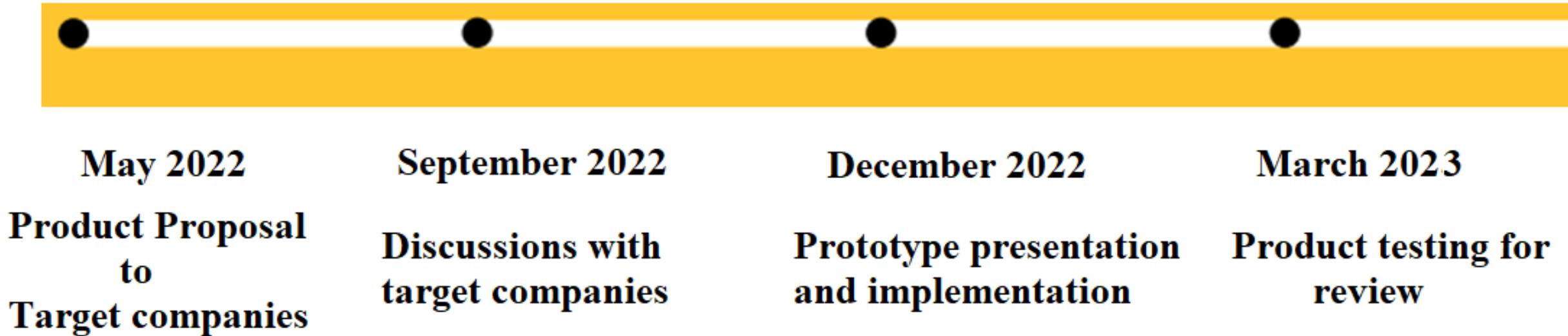
PHYSIOMED : <https://www.physiomed.ro>

HOCOMA: <https://www.hocoma.com/>

TECNOBODY: <https://www.tecnobody.com>)

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Action plan



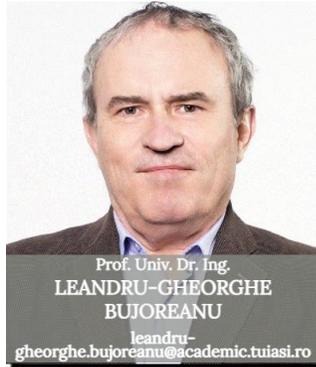
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SMARS team:



Implementation

Specialist in materials science and shape memory alloy (SMAs) activation and control, implementation of SMAs in macro and micro mechanical systems (MMEMS), ceramic materials



Shape memory effect

Specialist in Shape memory alloys (SMAs) behavior: wires and bands, NiTi, CuZnAl, CuAlNi, FeMnSi , Specialist in the Thermo-Mechanical Education Stage of Intelligent Alloys



Activation and control

Specialist in shape memory alloy round wires behavior, corrosion resistance of SMAs, non metallic materials properties and applications, shape memory thin films,



Medical feedback

Orthopedic-traumatology medical doctor, Implant specialist, recovery systems operator, St. Spiridon Hospital, Iasi, Dr. MANUELA POROHbbc_manuela@yahoo.com



Promotion

Phd. student and product image promotor, involved in the field of biodegradable FeMnSi shape memory alloys, web site designer, contact person.



Simulations

Specialist in biocompatible and biodegradable metallic materials, XRD equipment, micro-hardness and scratch tests, metallic materials resistance, mechanical behavior of materials

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