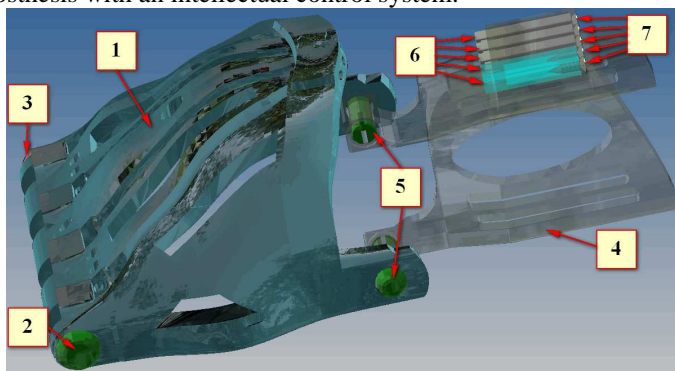


PROTOTYPE OF BIOMECHANICAL HAND PROSTHESIS

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Modern prostheses upper limbs divided into two main groups: cosmetic, which serve as an aesthetic substitute, and functional (active), which enable almost entirely to provide the functional properties of the healthy hand. Depending by level of amputation prostheses divided into prostheses of fingers, hand, forearm and shoulder. Since the hand and fingers in constant contact with a variety of traumatic objects at manufacturing or at living, they are the limb parts that required prosthetics. This work is a part of working prototype of human hand prosthesis with an intellectual control system.



3D model of prototype biomechanical hand prosthesis (base)

Fig. shows the structure of biomechanical hand prosthesis consisting of the following elements: metacarpus 1, which is connected with forearm 4 by means of two axel 5; axle 2 and cap 3 are used to fasten of fingers to metacarpus; non-elastic cords of nylon fasten to contact pins 6, which are insert into appropriate socket of forearm 4 for connection with each finger; non-elastic cords are tensioned by screws 7. In the fig. 1 not shown non-elastic cord, fingers and fixings to connect them one together.

Mechanical prosthesis has an advantage over electric in case when the patient is a child or a person with hand congenital defects. This is due to not developed or underdeveloped muscles of forearm that control the patient's fingers. For such patients the biomechanical hand prosthesis primarily intended for the development of forearm muscle groups with subsequent transition to the bioelectric prosthesis.