Solenoid Engine

Perkov, Andrei (School: Terry Sanford High School)
Burlachenko, Mikhail (School: Complex Prince Sultan High School)

The project "Solenoid engine" is aimed at increasing the availability of electric motors for personal use, as well as reducing the cost of production of electric motors. The solenoid motor can be assembled with your own hands without significant monetary costs, and its design is simple and understandable to everyone. The basic idea of the work of the solenoid motor is the phenomenon of electromagnetic induction. The voltage is alternately applied to two solenoids. As a result of the flow of electric current through the solenoid, a magnetic field is created. A metal rod is drawn into this magnetic field. Metal rods are connected to the shaft. When we apply voltage to another solenoid, the rod drops out of the given solenoid and is drawn into another solenoid. Thus, the shaft rotates, bringing the mechanism into action. Alternate suppling the voltage to the solenoid is controlled by an electric board - a multivibrator, which is also assembled manually. The housing is assembled from organic glass, but it can be made of any material that is suitable for strength. Before making the parts of the housing and the mechanism, the compatibility of all engine parts and its operability in the Solid Works program was checked. You can translate the translatory motion into rotary. Rotary movement is easier to translate into the desired form of motion. In the future, it is planned to create a solenoid motor, with a new type of construction that will be easier to manufacture and it will be smaller in size. It is planned to increase the number of coils of the conductor on solenoids. As a result, the power of engine will be increased. In addition, after the modernization of our engine, it will be possible to use it not only for personal purposes, but also in industry.