**Pneumatic Based Bike Gear Changing**

**Abstract:**

In this study, a gear shifting mechanism was designed and applied to make the shifting process faster and less destructible for the driver. The new device must be reliable, has a small dimensions, low construction and maintenance cost. This paper aims to improve gear shifting process using devices as: a manual four speed gear box, two pneumatic double acting cylinders, Programmable Logic Controller (PLC), an electrical motor , limit switches, push buttons, bulbs, a table (holder) and power supply. According to suggested gear\_ shifting method the control unit chooses optimum gear shifting ratio for an automobile without operating it manually (using relays). Using this method leaves to the driver the excitement of choosing the shifting moment. Keywords: Control unit (relays) - programmable, pneumatic cylinders, Solenoid valves, gear box, gear shifting mechanism, proximity sensor