Automated Oil Pumping System for Sewing Machines

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Various types of sewing machines are available in the apparel industry. On the surface of such a machine, there is a movable contact that touches with any other point, which need to be lubricated. Different amounts of lubricant oil are carried from the oil bath of a sewing machine and this oil should be changed time to time and usually that is done by mechanics manually. The manual way of the oil changing is a time consuming task and may require some special skills. An automated oil changing system such as implemented in this research has the ability to overcome the issue. This system consists of an oil filling system that can be operated with push buttons on a panel, as the inputs. The Arduino platform acts as the control unit while an oil pump is considered as the output. As a feature of this automated oil changing system, the oil bath can be filled automatically by pressing the buttons according to the type of the sewing machine. Different buttons available on the system enable the users to select the appropriate type of sewing machines. When the relevant push button is being pressed, input signal is received by the Arduino. The oil pump will turn on through the relay device with respect to the controlling program that has been uploaded to the Arduino. After filling the oil bath to the standard level, oil pump will turn off automatically. By using the automated system, the efficiency of the sewing machine maintenance process has significantly improved. As a result of this study, the best results were obtained in double needle machine based on the factorial analysis with multiple comparisons.

Keywords: Arduino, Sewing machine, Sewing machine maintenance