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Final Assessment (Practical)

1. Prepare a motor control with the following conditions:

   Once start pb is pressed warning orange lamp will flash every 2 seconds for 10 times. After 10 flashes, it will become faster, it will flash every 500ms. With the total of 20 flashes, the motor will run and the green lamp will turn on. Use the same condition when stopping the motor with stop pb and red lamp.

2. Modify the program that during stop sequence the flashing speed or will interchange (500ms for 10 flashes, and 2 seconds until 20 flashes).

3. Prepare a program for two motors with the following conditions.

   One motor can only run (green lamp on) for 10 times or a total of 2 minutes, else the motor will stop (red lamp on) and it will give an alarm that the motor is due for maintenance and orange lamp will flash for every 1 second. In manual mode, the second motor can be started manually with the same number of starts and operating hours.

   In auto mode, the second motor will automatically run. A reset button should be prepared for both motor controls to clear the alarm after maintenance is completed so that it can accommodate automatic changeover. However, if the running motor experienced fault or overload trip, the idle motor should cut-in even if it is already due for maintenance.

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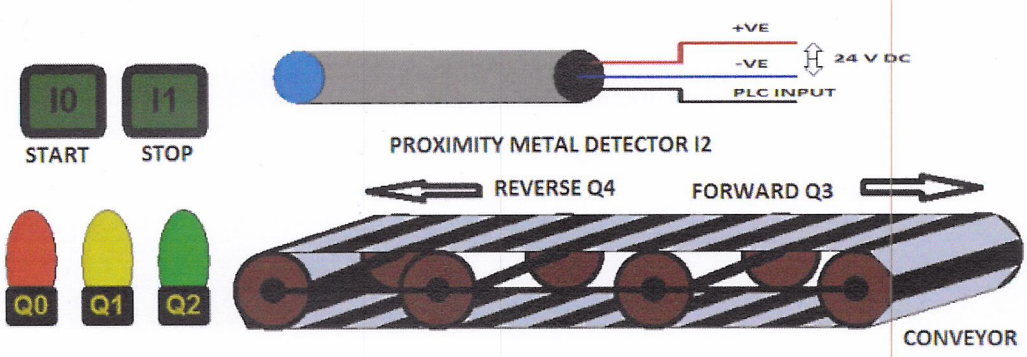

1. There are two push buttons I0 and I1 (both NO type) for start and stop. There is one proximity sensor I2. There are three lamps Q0(RED), Q1(Yellow) and Q2(Green). There is a conveyor which can run in forward and reverse direction. For forward direction Q3 should get on and for reverse Q4 should get on.

   When I0 is pressed, red should get on for 5 seconds. After 5 seconds, red should get off and yellow should get on for 10 seconds. After 10 seconds, yellow should get off and forward should get on for 10 seconds. After 10 seconds, forward will be off and after a 5 seconds delay, reverse should get on for 10 seconds. After 10 seconds of reverse direction, repeat the process.

   I2 sensor must be on to run the machine. If I2 is off and I0 is pressed then machine won't start. When machine runs and in between the process i2 sensor gets off then machine will stop. Whenever conveyor runs either in forward or in reverse direction, green should be on. I1 is for emergency stop.

2. Modify the program of Problem 1 by adding a flashing/blinking circuit on the yellow lamp of 2 seconds interval using a single timer.

3. Modify the program of Problem 2 by adding an input to have an option that after 10 cycles or complete process it will automatically stop. Reset input should also be added to normally start the machine again.

4. Modify the program of Problem 3 that after 5 cycles the flashing or blink interval becomes 1 second and for the 10^{th} cycle will be 500ms.

5. Modify the program of Problem 4 so that after each and every cycle will give an additional 2 seconds for forward and reverse run time.