

Homework # 3, EE446, PLC, term 062

Consider an application where one wants to control a two-speed motor. The specifications for the application are:

- (a) The motor can only be started in the Speed 1.
- (b) The motor is then switched from Speed 1 to Speed 2 after 10 seconds delay.
- (c) The motor cannot be switched from Speed 2 to Speed 1.
- (d) Speed 1 and Speed 2 cannot be ON simultaneously.
- (e) If excessive vibration occurs, the motor must stop and cannot be restarted (is locked out) until a reset button is pressed.
- (f) If the stop button is pressed when the motor is running in either speed, the motor will stop, but will not lock out.

Assuming the following input / output assignments:

Inputs:

START_PB	Start push-button, NO, ON when start.
STOP_PB	Stop Push-button, NC, OFF when stopping.
RESET_PB	Reset push-button, NO, ON (closed) when resetting.
VIB_SENSE	Vibration sensor, NC, ON when vibration occurs

Outputs:

SPEED_1	Motor speed 1
SPEED_2	Motor speed 2

The two outputs are assumed to be inputs to a motor controller that directly controls the motor.