Date: 23/03/2021

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| Experiment number | 6 |
| Experiment title | A switch is connected on P1.0 of 8051 and a DC motor is connected on P0.0 and P0.1. If the switch is ON, rotate the DC motor in clockwise direction. Else, DC motor should rotate in anti-clockwise direction |
| Hardware requirement | 8051 Development kit, DC motor |
| Software requirement | Keil software |

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| Aim | Rotate DC motor clockwise and anti-clockwise depending upon status of P1.0 |
| Theory | * The Interfacing of Dc motor With 8051 Microcontroller     DC motor converts electrical energy in the form of Direct Current into mechanical energy.   * In the case of the motor, the mechanical energy produced is in the form of a rotational movement of the motor shaft. * The direction of rotation of the shaft of the motor can be reversed by reversing the direction of Direct Current through the motor. * The motor can be rotated at a certain speed by applying a fixed voltage to it. If the voltage varies, the speed of the motor varies. * Thus, the DC motor speed can be controlled by applying varying DC voltage; whereas the direction of rotation of the motor can be changed by reversing the direction of current through it. * For applying varying voltage, we can make use of the PWM technique. * For reversing the current, we can make use of H-Bridge circuit or motor driver ICs that employ the H-Bridge technique or any other mechanisms |
| Algorithm / Flowchart | 1. use JNB to check status of pin P1.0 2. if P1.0 is set rotate motor in clockwise 3. then Set P0.0 and clear P0.1 4. if P1.0 is Clear rotate motor in anti-clockwise 5. then Set P0.1 and clear P0.0 |
| Program | ORG 0000H  SJMP MAIN  MAIN: JNB P1.0,ANTI  CLCK : SETB P0.0  CLR P0.1  SJMP MAIN  ANTI : CLR P0.0  SETB P0.1  SJMP MAIN  END |
| Results / Output | When switch is Off  C:\Users\admin\Documents\MCA\MCA EXPERIMENTS\EXP6OF.PNG  When switch is ON  C:\Users\admin\Documents\MCA\MCA EXPERIMENTS\EXP6ONN.PNG |
| Conclusion | Thus program written for rotate Dc motor Interfaced with 8051 Microcontroller Clockwise and anti-clockwise based on switch position Interfaced with 8051 Microcontroller. |

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| Faculty Sign | Grade received |