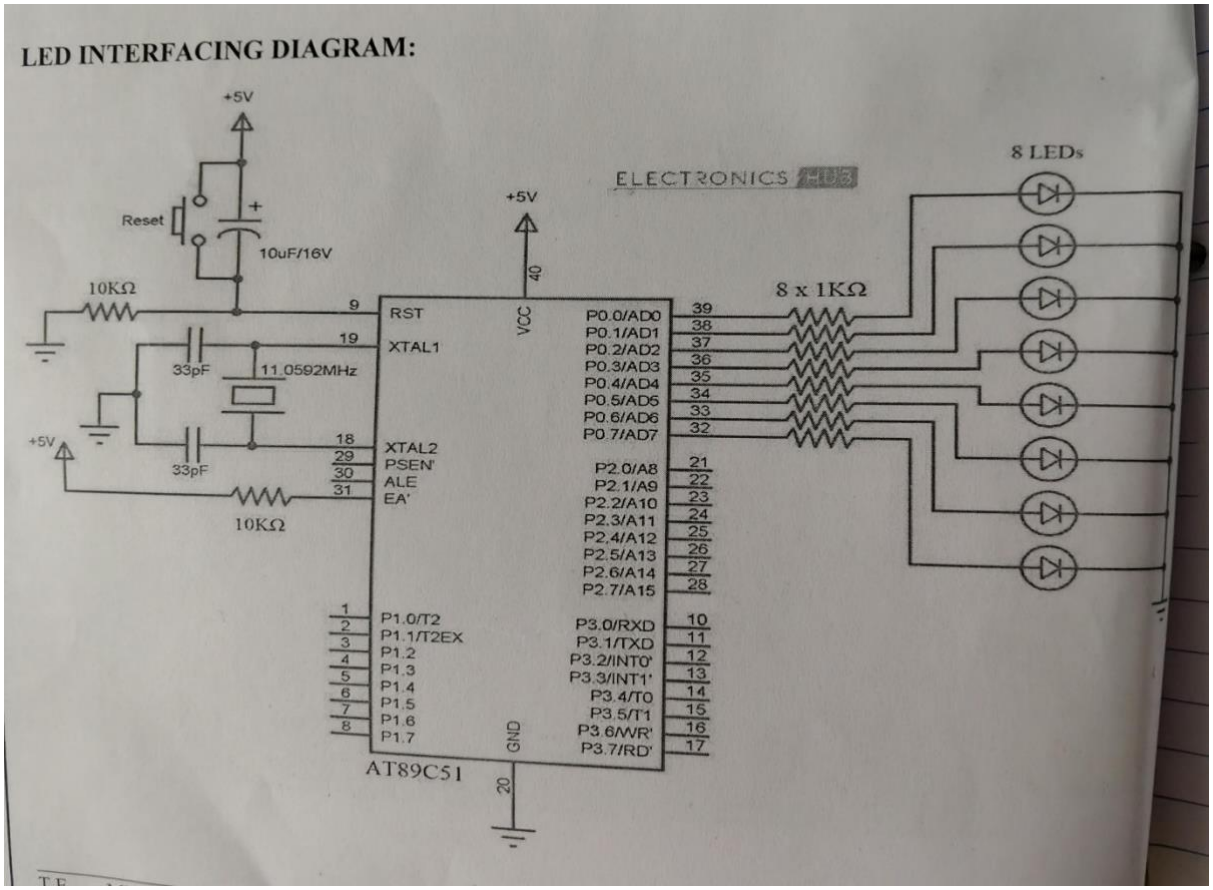
Experiment 1: Interfacing LED Bank to 8051

Algorithm:

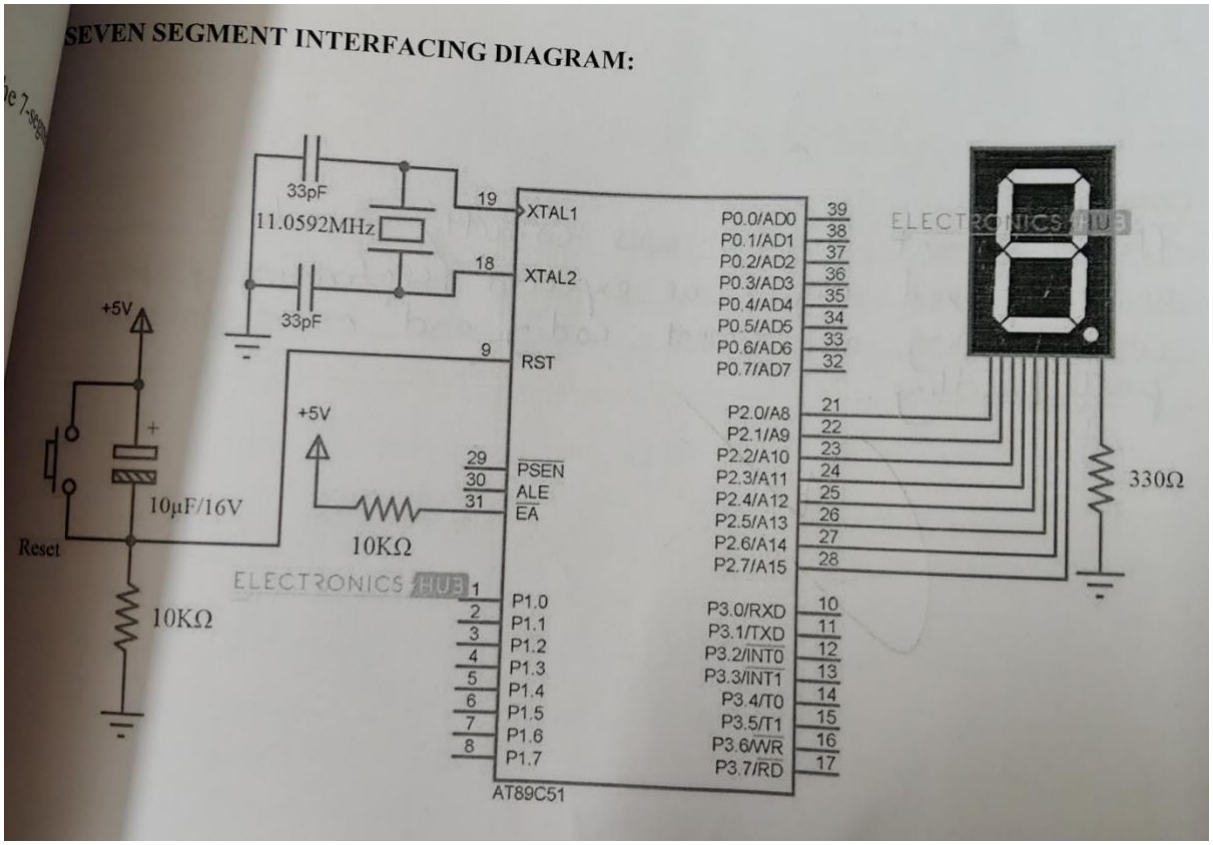
1. Start the program.
2. Configure **Port 0** as output.
3. Send **0xAA** to Port 0 → LEDs ON in alternate pattern.
4. Delay for some time.
5. Send **0x55** to Port 0 → LEDs toggle.
6. Repeat steps 3–5 continuously.



Experiment 2: Interfacing 7-Segment Display to 8051

Algorithm:

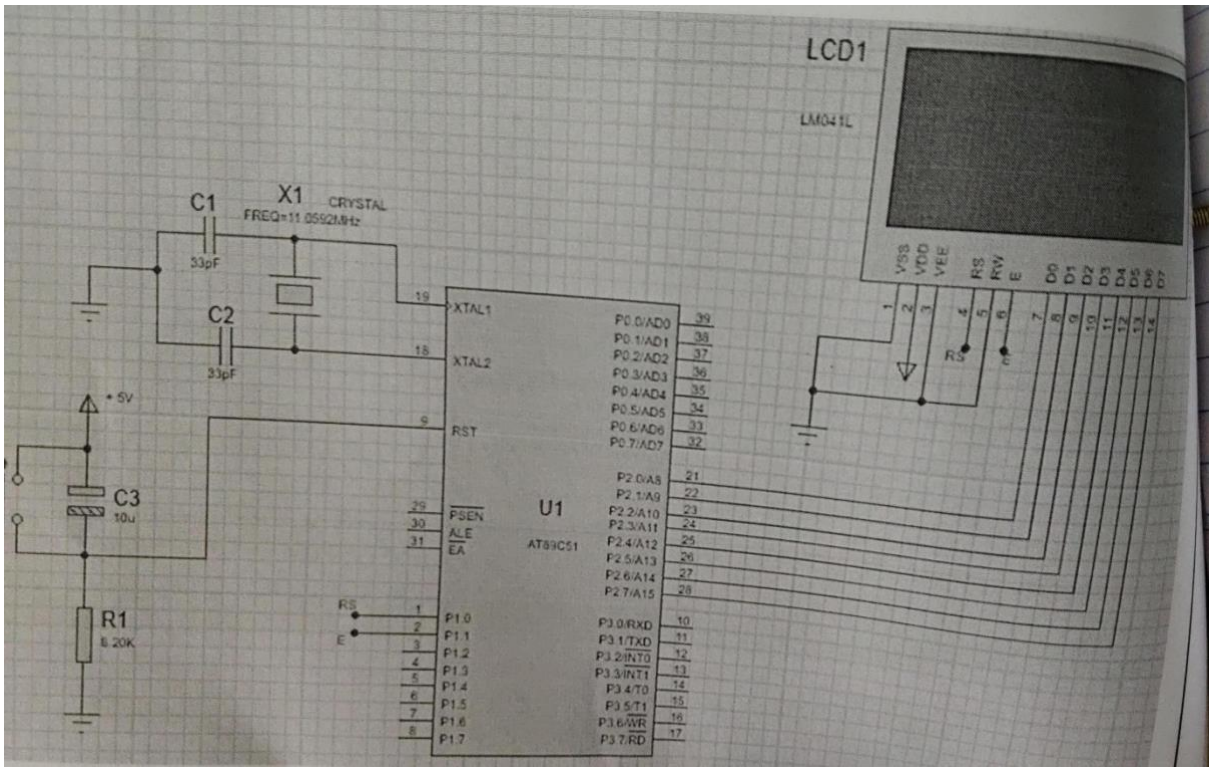
1. Start and configure **Port 0** as output.
2. Define array with **7-segment codes (0–9)**.
3. Loop through digits 0 to 9.
4. Output each segment code to display.
5. Delay between digits.
6. Repeat continuously.



Experiment 3: Interfacing LCD to 8051

Algorithm:

1. Initialize LCD in **8-bit mode**.
2. Clear LCD and set cursor.
3. Send first message string to line 1.
4. Move cursor to second line.
5. Send second message string.
6. End or loop indefinitely.



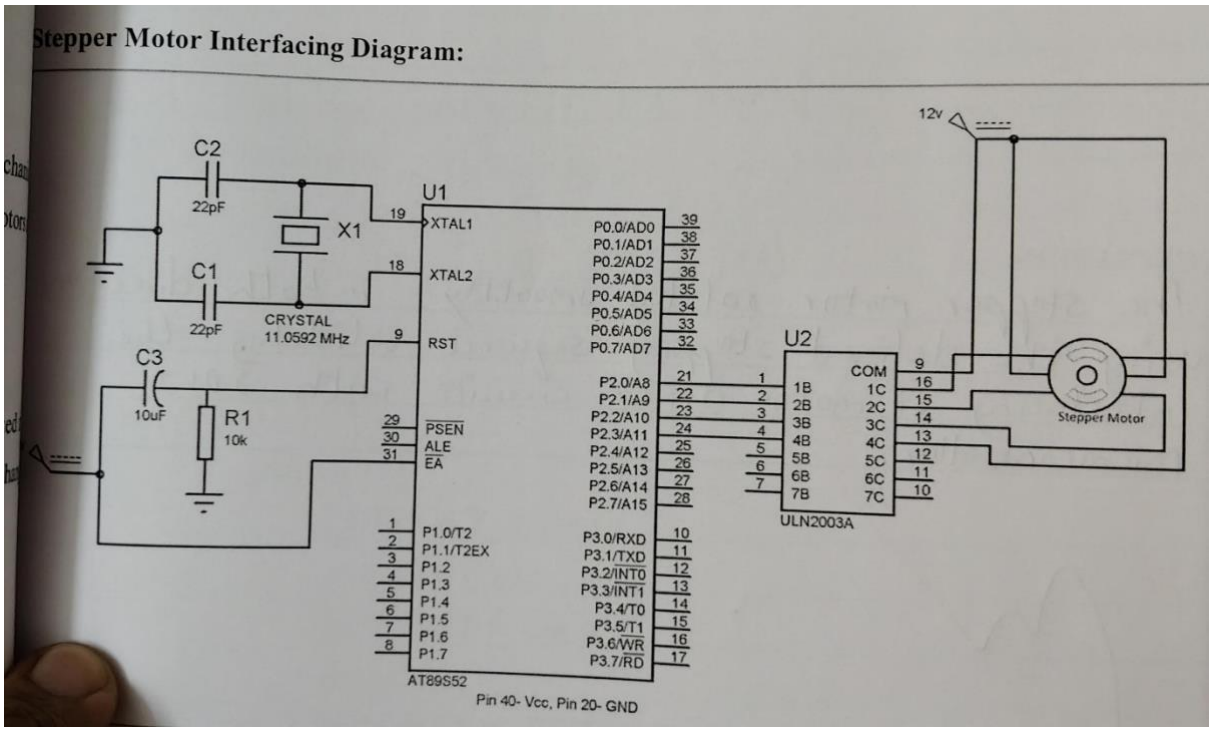
Experiment 4: Interfacing Stepper Motor to 8051

Algorithm (Clockwise):

1. Start and configure **Port 0** as output.
2. Send step sequence (0x01, 0x03, 0x02, 0x06, 0x04, 0x0C, 0x08, 0x09).
3. Give small delay between steps.
4. Repeat sequence for continuous rotation.

Algorithm (Anticlockwise):

1. Use reverse sequence of steps above.
2. Repeat continuously.



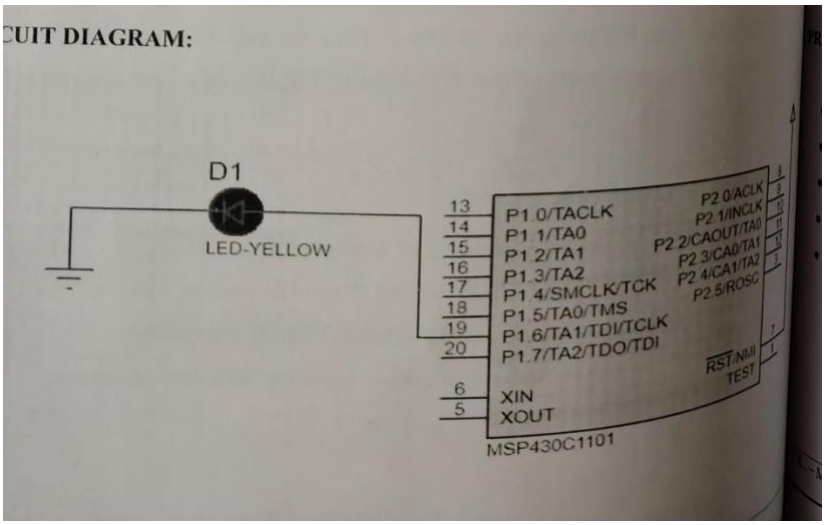
Experiment 5: LED Blinking & Switch Control

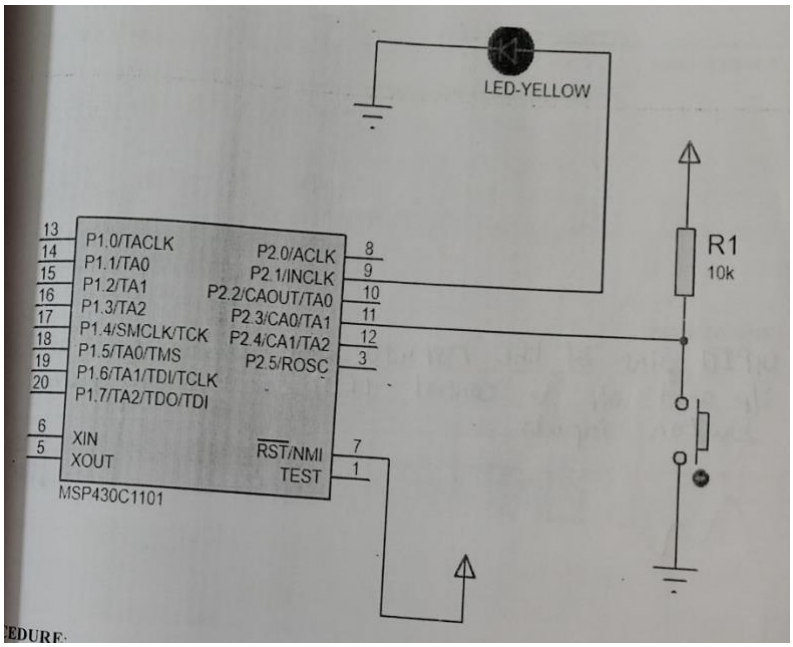
LED Blinking Algorithm:

1. Set LED pin as **output**.
2. Turn LED **ON**, delay 500 ms.
3. Turn LED **OFF**, delay 500 ms.
4. Repeat continuously.

LED with Switch Algorithm:

1. Set LED as **output**, switch as **input**.
2. Read switch status.
3. If pressed → LED ON; else → LED OFF.
4. Repeat continuously.

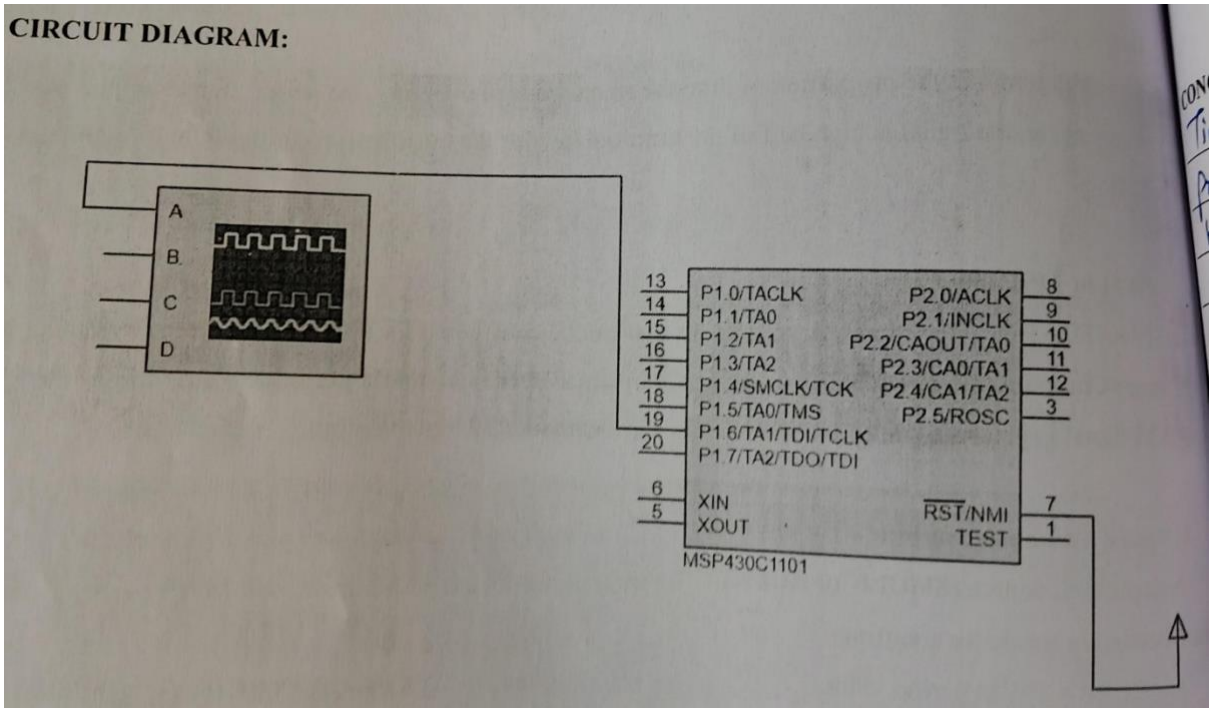




Experiment 6: PWM

Algorithm:

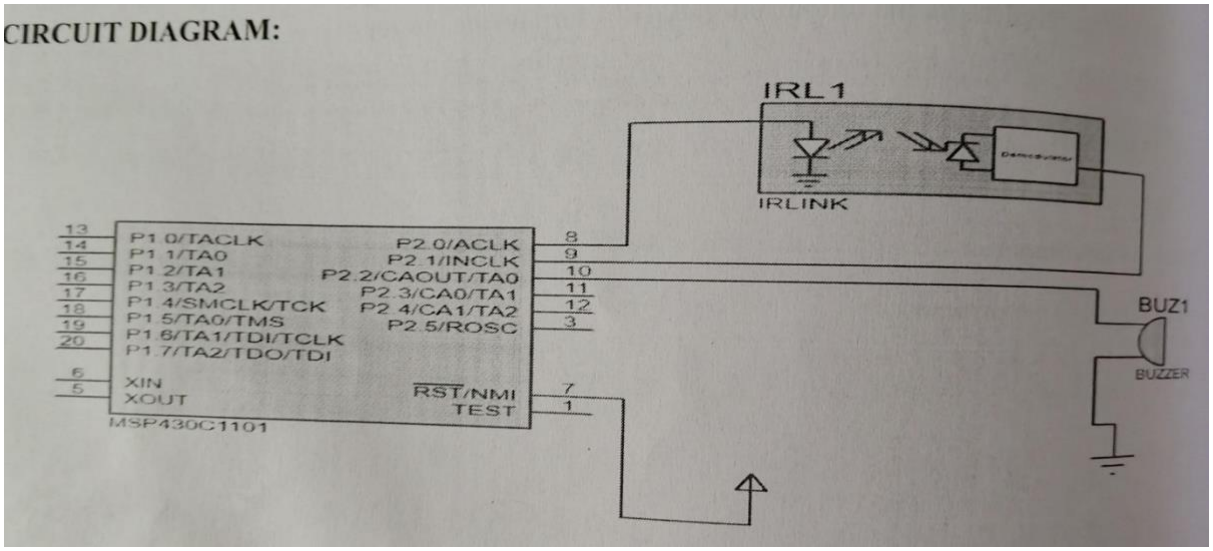
1. Set PWM pin as **output**.
2. Initialize variable `i=0`.
3. Gradually increase PWM value (0–255) in steps of 10.
4. Apply PWM output and delay.
5. Repeat loop continuously.



Experiment 7: IR Sensor

Algorithm:

1. Set IR sensor pin as **input**, buzzer as **output**.
2. Start serial communication.
3. Continuously read IR sensor.
4. If object detected → buzzer ON and print message.
5. Else → buzzer OFF.
6. Repeat loop.



Experiment 8: Relay and DC Motor Control

Algorithm:

1. Set relay pin as **output**.
2. Turn relay **ON** to start motor.
3. Delay for 3 seconds.
4. Turn relay **OFF** to stop motor.
5. Delay again for 3 seconds.
6. Repeat continuously.