GAS LEAKAGE DETECTION PROTYPE

Under Guiidance of

PROFF. S K PANDEY SIR

- Shishupal Singh (2215006)
- Jahangir Alom (2215007)
- Braj Kishor Sah (2215008)
- Piyush Kumar (2215016)
- Prem Kushwaha (2215028)

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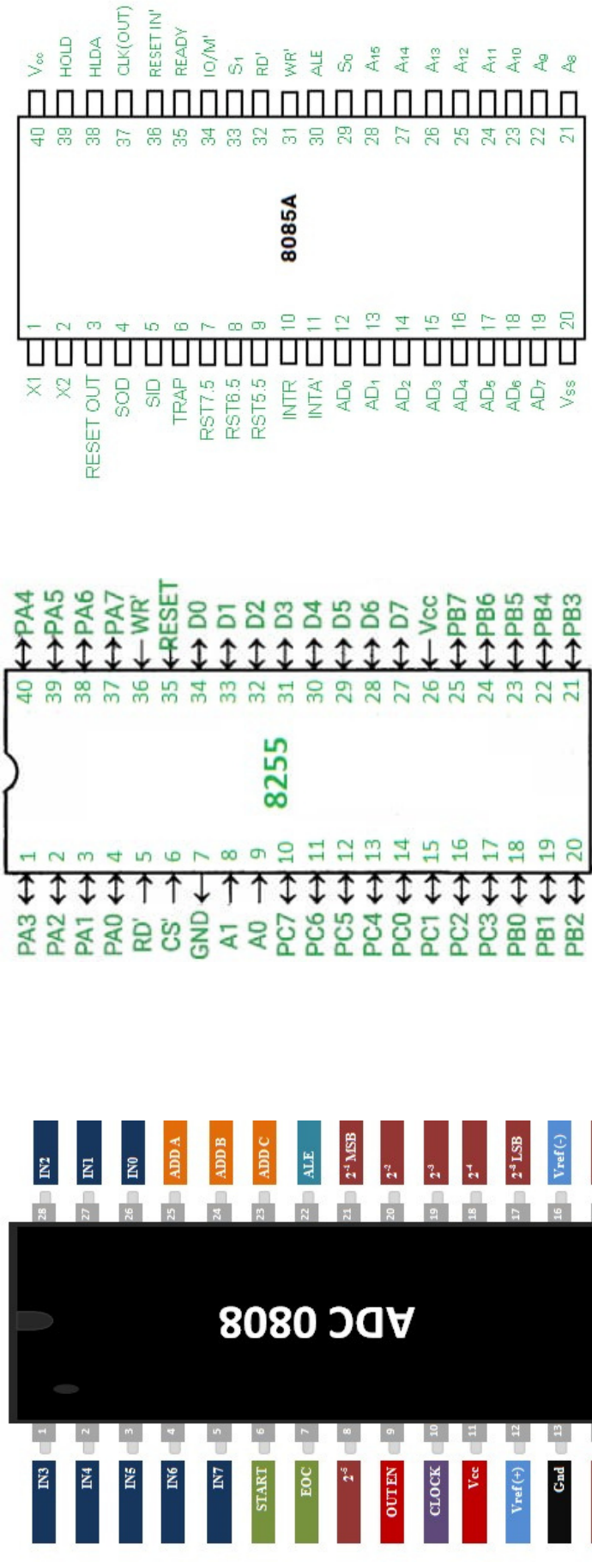
OBJECTIVE

The primary objective of this project was to develop a gas leakage detection prototype that utilizes sensors to detect hazardous gases quickly. The system provides real-time alerts to enhance safety and prevent accidents in residential, industrial, and commercial environments.

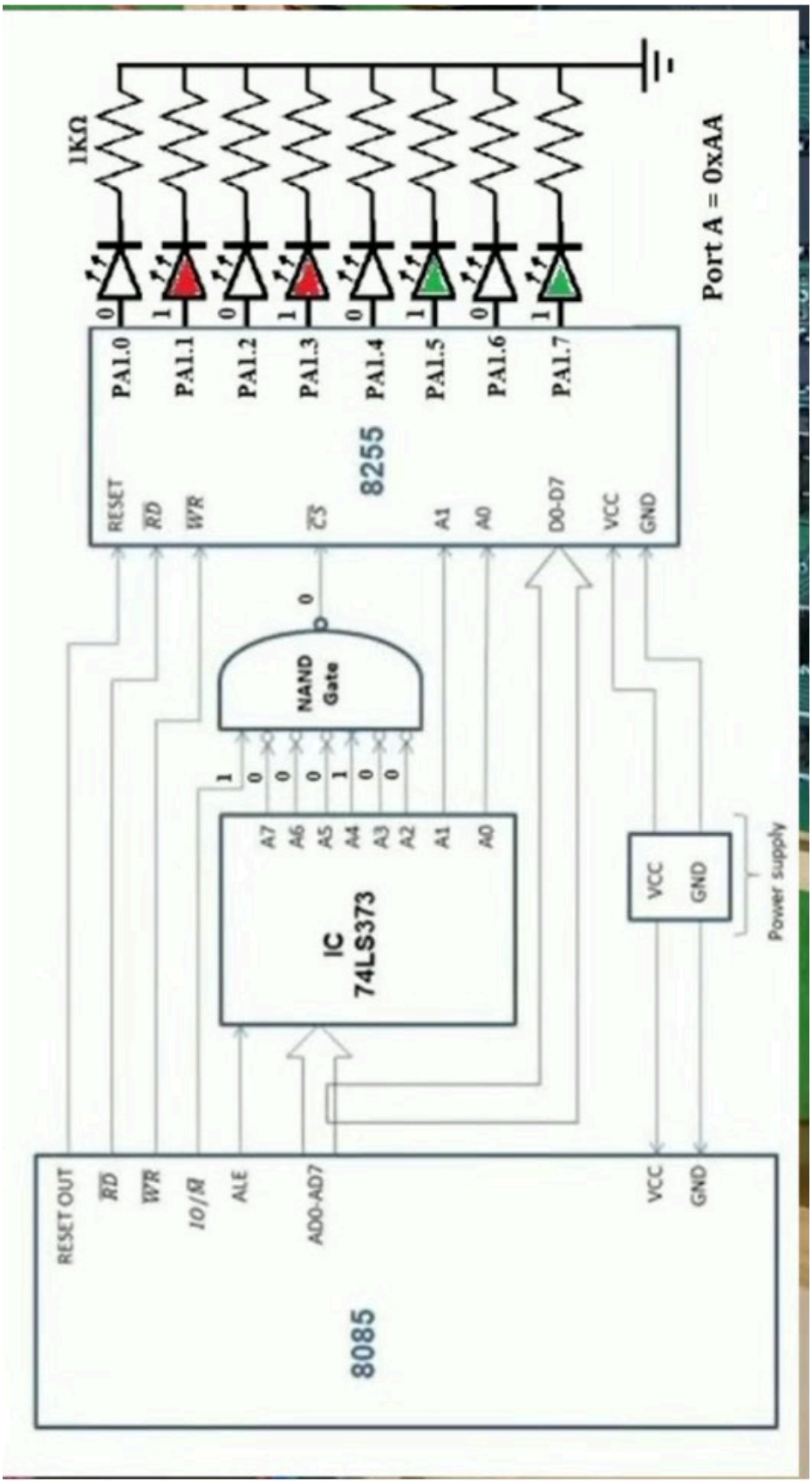
PARTS USED

- 8085 Microprocessor Kit
- 8255 Programmable Peripheral Interface
- ADC-0809
- MQ-8 Gas Sensor , LED

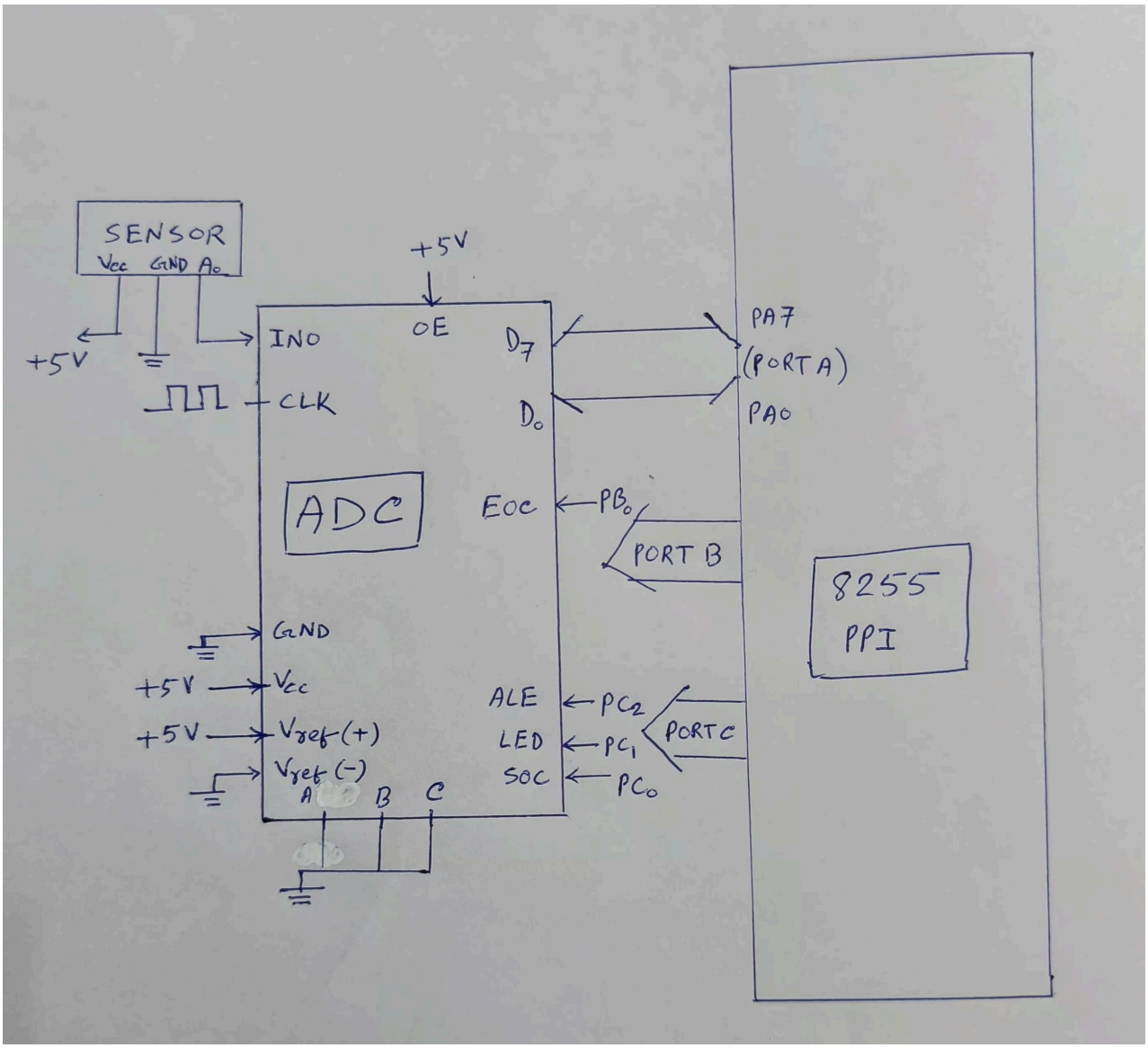
PIN OUT OF ALL ICs



INTERFACING OF 8085 & 8255



CIRCUIT DIAGRAM



CODE OF 8085

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MVI A, 92H          ; Control word to configure 8255:
OUT 03H             ; Send control word to control port of 8255

START:
   ; Latch address for IN0 by pulsing ALE (connected to PC2)
   MVI A, 04H       ; Set PC2 high to enable ALE
   OUT 02H          ; Write to Port C
   NOP              ; Small delay to ensure latching
   MVI A, 00H       ; Set PC2 low to disable ALE
   OUT 02H          ; Write to Port C

   ; Send Start of Conversion (SOC) to ADC via PC0
   MVI A, 01H       ; Set PC0 high to start conversion
   OUT 02H          ; Write to Port C

WAIT_EOC:
   ; Wait for End of Conversion (EOC) on PB0
   IN 01H           ; Read Port B
   ANI 01H          ; Mask all bits except PB0 (EOC)
   JZ WAIT_EOC      ; If EOC is low, wait here

   ; Read ADC output from Port A
   IN 00H           ; Read ADC data from Port A
ORG 0000H

   CPI 50H          ; Compare with threshold (e.g., 50H)
   JC NO_GAS        ; If ADC value is below threshold, no gas is detected

   ; Gas detected, turn on LED connected to PC1
   MVI A, 02H       ; Set PC1 high to turn on LED
   OUT 02H          ; Write to Port C

   ; Call delay subroutine to hold the LED on
   CALL DELAY

   ; Turn off LED after delay
   MVI A, 00H       ; Set PC0 and PC1 low
   OUT 02H          ; Write to Port C
   JMP START        ; Repeat process

NO_GAS:
   ; No gas detected, turn off LED connected to PC1
   MVI A, 00H       ; Set PC0 and PC1 low
   OUT 02H          ; Write to Port C
   JMP START        ; Repeat process

; Delay Subroutine
DELAY:
   ; Simple loop for delay
   MVI B, 0FH       ; Outer loop counter
DELAY_LOOP1:
   MVI C, 0FFH      ; Inner loop counter
DELAY_LOOP2:
   DCR C            ; Decrement inner loop
   JNZ DELAY_LOOP2  ; Repeat until C is zero
   DCR B            ; Decrement outer loop
   JNZ DELAY_LOOP1  ; Repeat outer loop until B is zero
   RET              ; Return from delay

END
```

THANK YOU