LCD Interfacing on Firebird V Robot

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Agenda for Discussion

1. Introduction
   - LCD Definition
2. Understanding LCD
   - Pin Configuration
   - Control Pins
   - Data Pins
3. LCD Programming
   - LCD Interfacing
   - Some Important commands
   - LCD Initialization
   - Programming

Liquid Crystal Display

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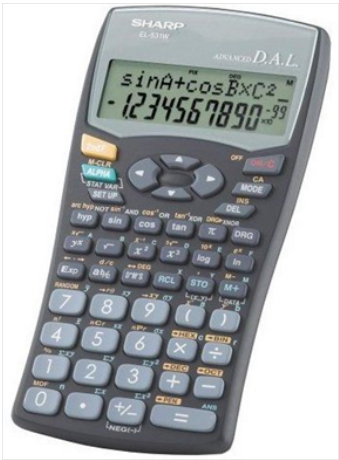

Dot Matrix Liquid Crystal Display

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2. It can be configured to drive a dot-matrix liquid crystal display

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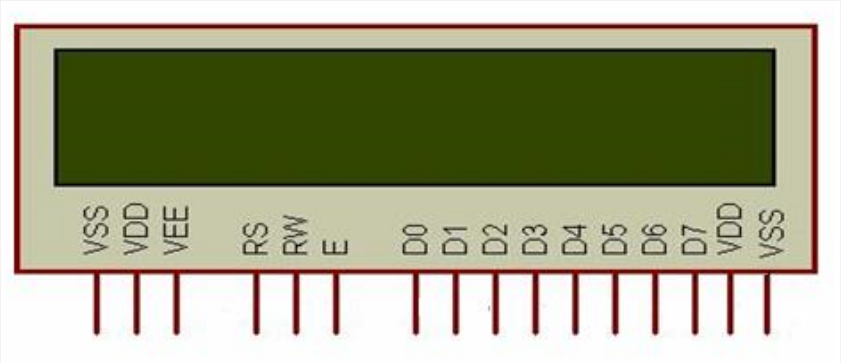

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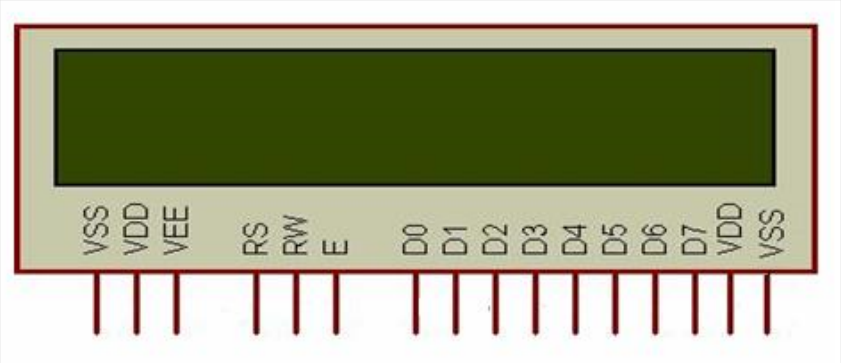

Pin	Description
Vss	Ground
Vdd	Supply Voltage
Vee	Contrast Voltage
Vdd,Vss	Back Light Supply
RS	Register Select
RW	Read/Write
E	Enable
D0-D7	Bidirectional Data Bus

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2. Read/Write Select
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3. Enable
   - Used to latch the data present on the data pins
   - A high-to-low edge is needed to latch the data

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  - Bidirectional Data / Command Pins
  - Alpha Numeric Character are sent in ASCII format
  - We can use LCD either 8 bit mode or 4 bit mode
  - We use 4 bit mode: only D4 to D7 data pins are used

LCD Interfacing

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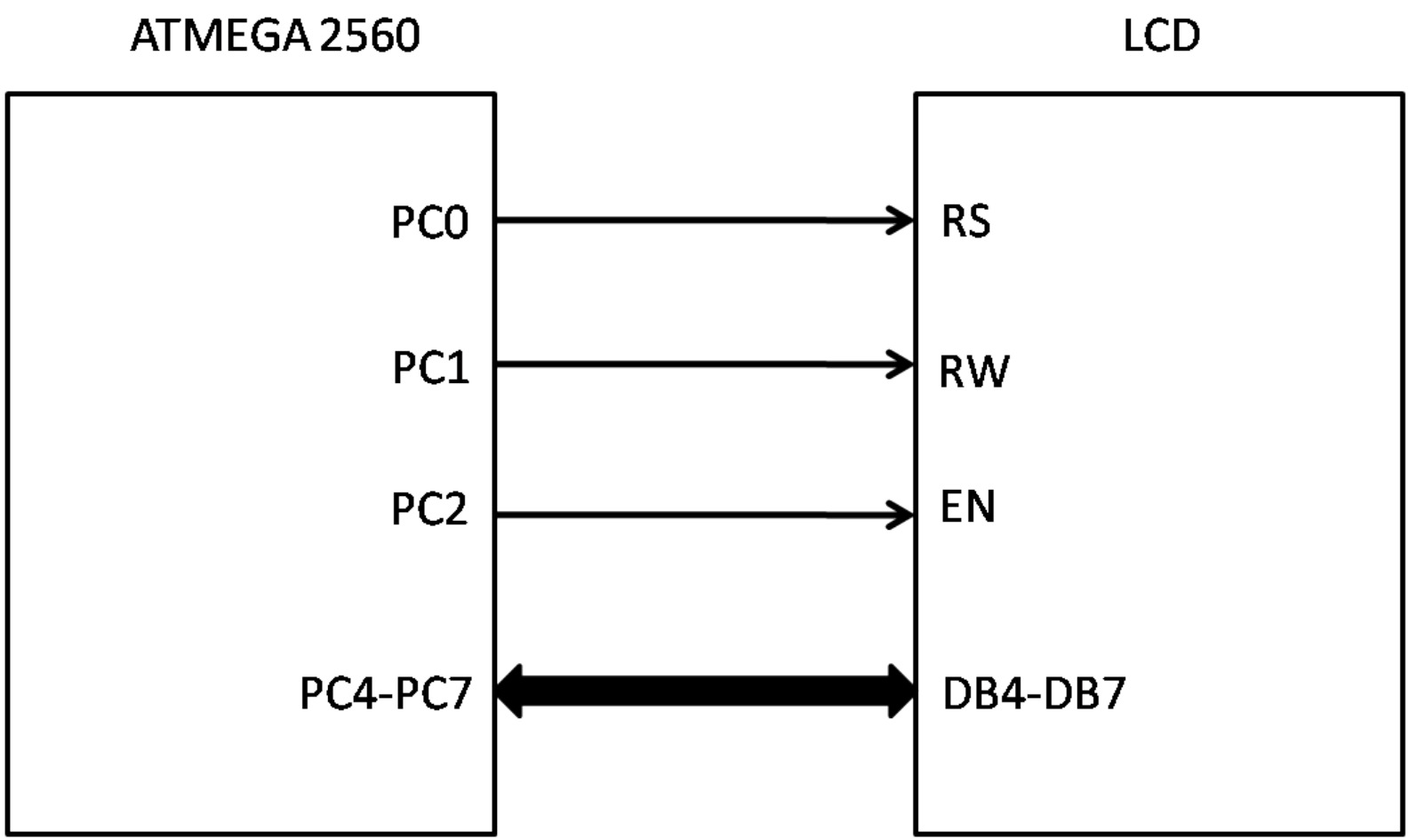

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Clear display screen	01
Return Home (First line first block)	02

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Function set (4-bit interface, 2 lines, 5*7 Pixels)	28
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Display ON cursor Blinking	0F

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Clear display screen	01
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Display ON cursor Blinking	0F
Address for Line 1	80

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Address for Line 2	C0
Display ON cursor OFF	0C

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Function set (4-bit interface, 2 lines, 5*7 Pixels)	28
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6. Send LCD Display On value i.e. 0x0F
7. Send LCD Cursor Home i.e. 0x02

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// To print string of characters
void lcd_string(char row, char column, char* str);
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Main Program

```
int main (void)
{
     lcd_port_config();
     lcd_init();
     lcd_string(1, 3, "e-Yantra");
     lcd_string(2, 3, "IIT Bombay");
     _delay_ms(5000);
     lcd_clear();
     lcd_numeric_value(2, 6, 458, 4);
     while(1);
  }
```

Thank You!

Post your queries on: support@e-yantra.org