ADVANCED MICROCONTROLLER PROJECT COMPETITION

TOPIC:-GLCD Interfacing using LPC2148

GROUP MEMBERS	ENROLLMENT NO.
MOHIT RAJESHKUMAR BHATIA	**200420111021**
MARMIK KEYUR JOSHI	**200420111007**
MOHIL JAIN	**200420111011**
GAUTAM NARESH VATIANI	**200420111056**

ACKNOWLEDGEMENT

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- We hereby add the special vote of thanks for **Prof. PRITESH SAXENA** who agreed to act as our mentor despite his many other academic and professional commitments, wisdom knowledge and commitments to the highest standards inspired and motivated us and also helped us in successfully completing the project.

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Brief Information about the project

- Interfacing LED with LPC2148
- Flash a LED using the LPC2148 Development Board. It works by turning ON a LED & then turning it OFF & then looping back to START. However, the operating speed of the microcontroller is very high so the flashing frequency will also be very fast to be detected by human eye.

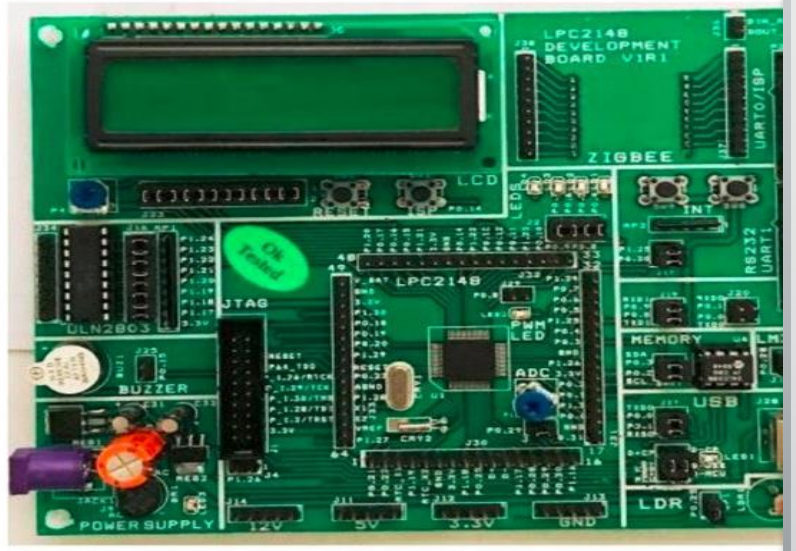
COMPONENTS:-

1.LPC 2148

2. Connecting Wires

3. KEIL Software version4

4. GLCD Display

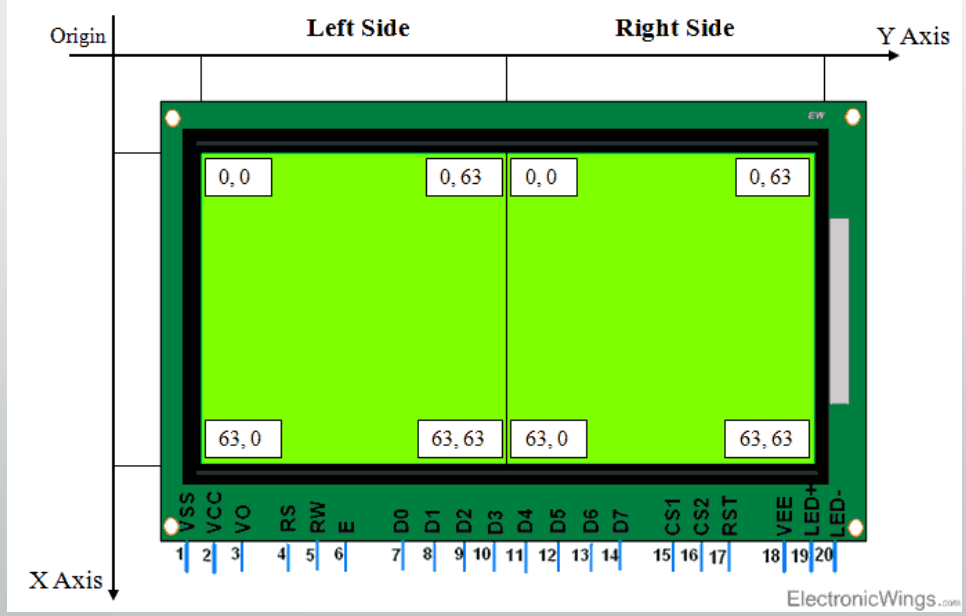


DESCRIPTION

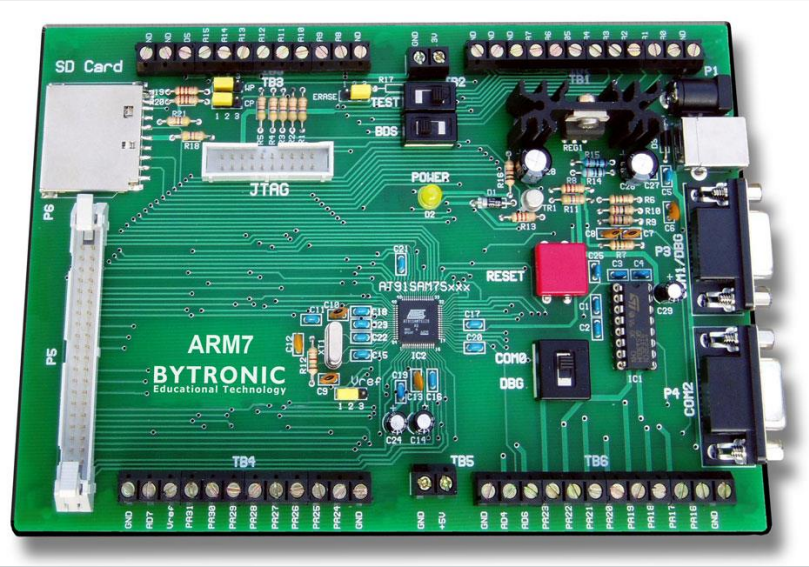
- ***LPC2148:-*** **The LPC2148 microcontroller is designed by Philips (NXP Semiconductor) with several in-built features & peripherals. Due to these reasons, it will make more reliable as well as the efficient option for an application developer. LPC2148 is a 16-bit or 32-bit microcontroller based on ARM7 family.**

- **Features of LPC2148**
- The main features of LPC2148 include the following.
- The LPC2148 is a 16 bit or 32 bit ARM7 family based microcontroller and available in a small LQFP64 package.
- ISP (in system programming) or IAP (in application programming) using on-chip boot loader software.
- On-chip static RAM is 8 kB-40 kB, on-chip flash memory is 32 kB-512 kB, the wide interface is 128 bit, or accelerator allows 60 MHz high-speed operation.
- It takes 400 milliseconds time for erasing the data in full chip and 1 millisecond time for 256 bytes of programming.
- Embedded Trace interfaces and Embedded ICE RT offers real-time debugging with high-speed tracing of instruction execution and on-chip Real Monitor software.
- It has 2 kB of endpoint RAM and USB 2.0 full speed device controller. Furthermore, this microcontroller offers 8kB on-chip RAM nearby to USB with DMA.
- One or two 10-bit ADCs offer 6 or 14 analogs i/ps with low conversion time as 2.44 μs/ channel.
- Only 10 bit DAC offers changeable analog o/p.
- External event counter/32 bit timers-2, PWM unit, & watchdog.
- Low power RTC (real time clock) & 32 kHz clock input.

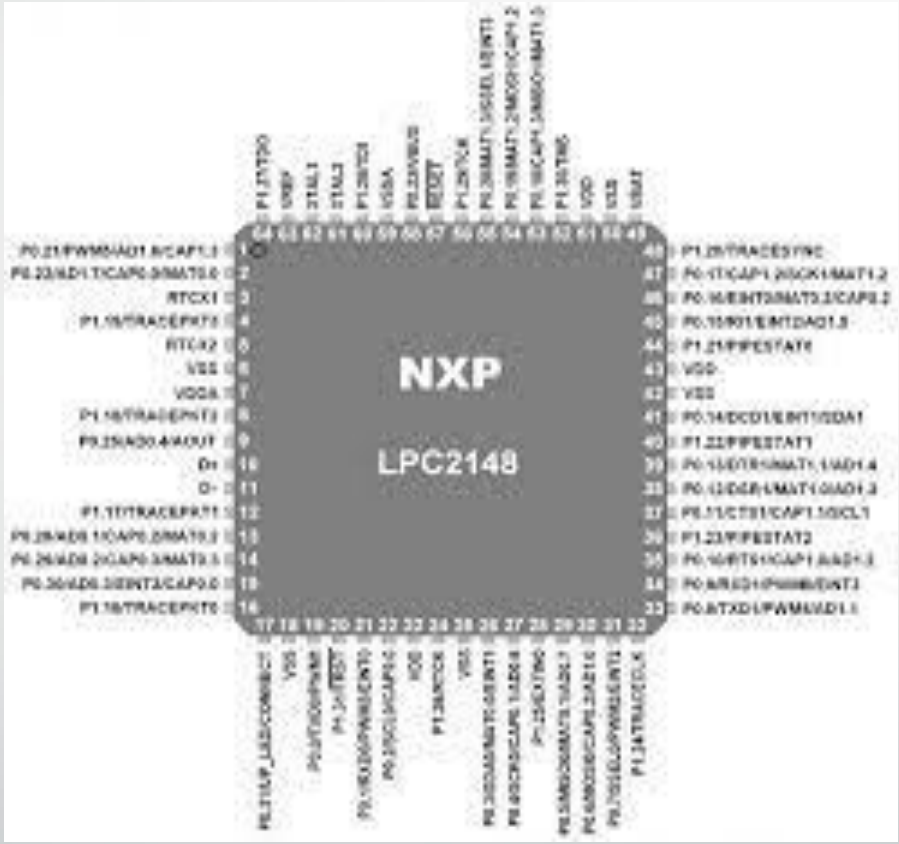
- ***GLCD Display:-*** Graphical LCD has 128x64 pixels. It has 128 columns and 64 row segments.
  It uses two display segment drivers. Since segment driver has 64 channel, GLCD module contains two segment drivers to drive 128 column segments.
- It has one common driver which drives 64 row segments as well as it generates clock and control signals for two segment drivers



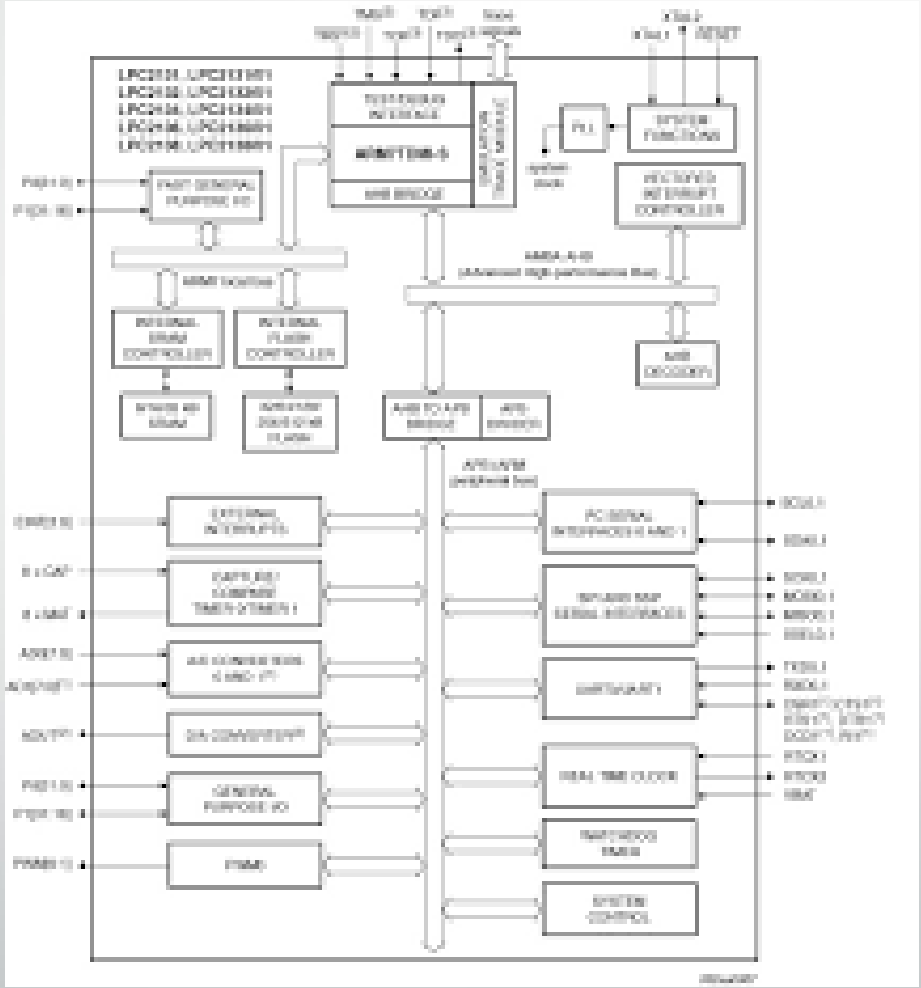
- ***ARM 7:-*** **ARM7 processor is commonly used in embedded system applications. Also, it is a balance among classic as well as new-Cortex sequence. This processor is tremendous in finding the resources existing on the internet with excellence documentation offered by NXP Semiconductors. It suits completely for an apprentice to obtain in detail hardware & software design implementation.**



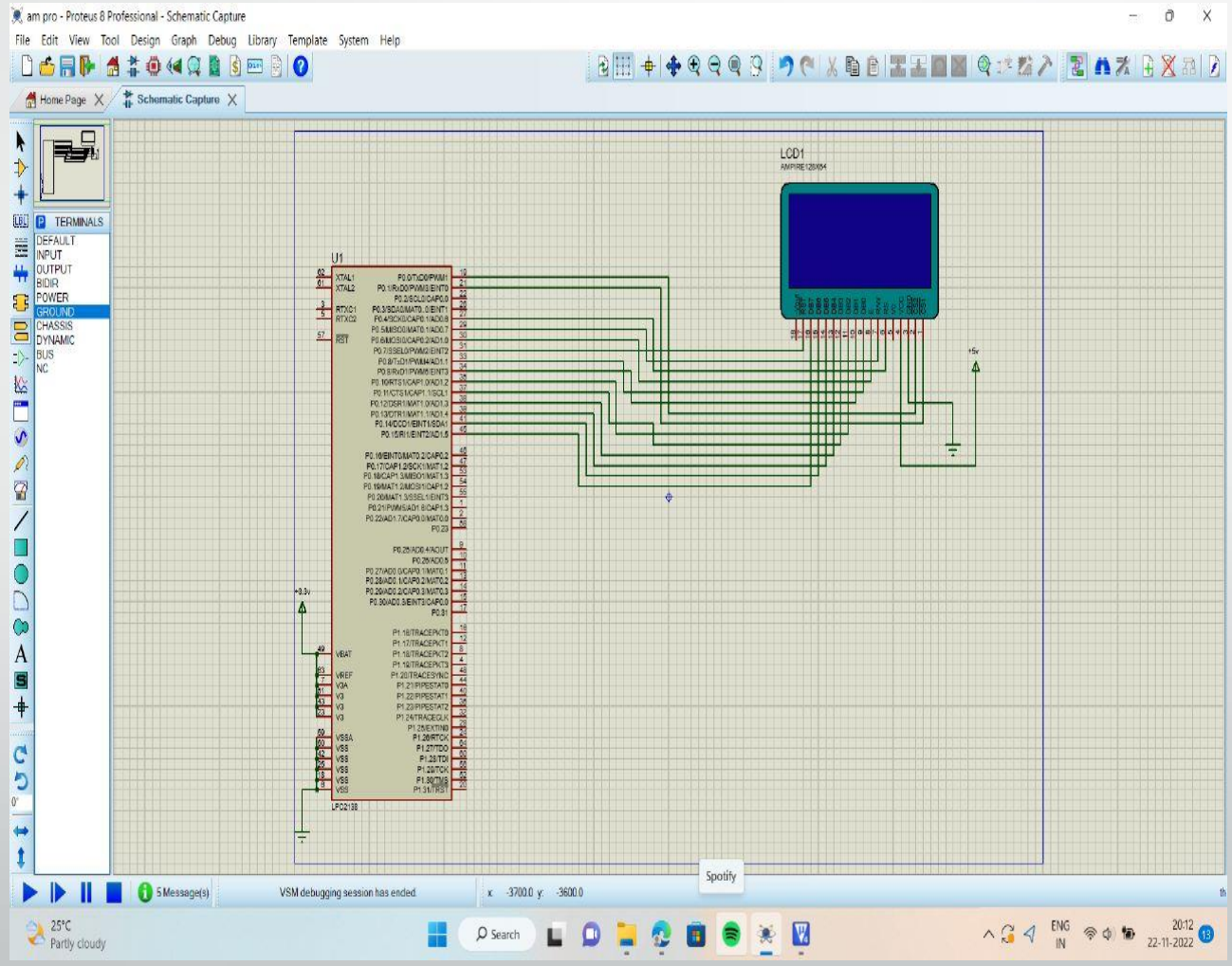
PIN DIAGRAM OF LPC2148



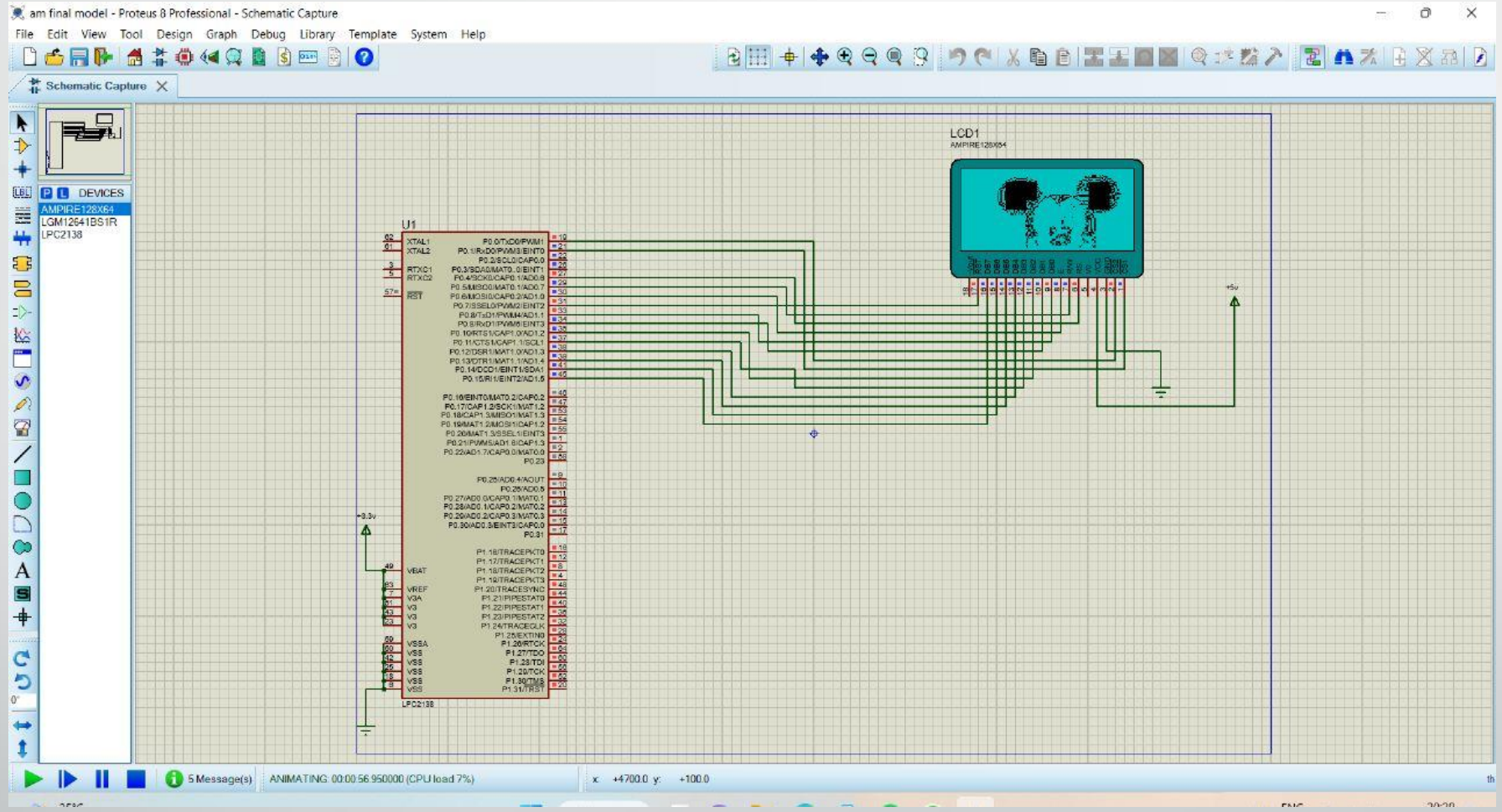
BLOCK DIAGRAM OF LPC2148



CIRCUIT DIAGRAM



OUTPUT


am final model - Proteus 8 Professional - Schematic Capture
File Edit View Tool Design Graph Debug Library Template System Help
Schematic Capture
DEVICES
AMPIRE128X64
LGM12641BS1R
LPC2138
LCD1
AMPIRE128X64
U1
LPC2138
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+3.3v
5 Message(s)
ANIMATING: 00:00:56.950000 (CPU load 7%)
x: +4700.0 y: +100.0

REFRENCES

- https://www.electronicwings.com/pic/glcd-128x64-interfacing-with-pic18f4550-microcontroller
- https://youtu.be/JLsPS58bmOo
- https://exploreembedded.com/wiki/Interfacing_GLCD(128x64)_with_PIC16F877A
- https://www.elprocus.com/arm7-based-lpc2148-microcontroller-pin-configuration/

THANK YOU