M M I D I S P L A Y

I N T E R F A C E P A N E L

**11-01-001-6**

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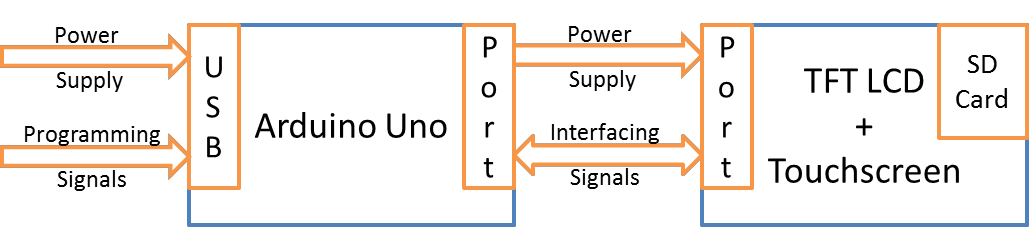
1

A B S T R A C T

This module consists of an TFT touchscreen shield mounted on Ar- duino Uno. This is used to display the name and manufacturer of any product.

|  |  |  |
| --- | --- | --- |
| 1 | 1. | C O M P O N E N T S  2.4” TFT Touch Shield for Arduino |
|  | 2. | Arduino Uno |
|  | 3. | USB Type A (male) to Type B (male) cable |
|  | 4. | 5.0V , 1A power supply with USB Type A (female) connector |
|  | 5. | micro-SD card (less than or equal to 4GB) |

2 S Y S T E M L E V E L B L O C K D I A G R A M



**Figure 1:** System level block diagram

3 H A R D W A R E S E T U P

**3.1 for usage**

As shown in figure 1 the TFT Touch Shield is plugged onto Arduino Uno ports for interfacing. Vdd and Gnd pins on both boards should be matched for proper mounting. *If you are setting up arduino uno first time on this computer, do not mount TFT touchsreen shield on the arduino board yet. It will be mounted after arduino uno setup section.*

**3.2 for programming**

The USB cable’s Type B end is connected to the Arduino Uno board and this cable provides both the power and programming signals. In case one wants to program the module, USB Type A end or cable should be connected to a computer else it should be connected to a

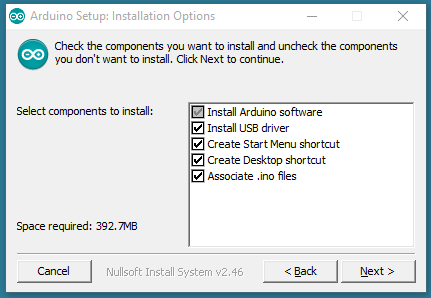
5V , 1A power supply. In both cases Arduino and LCD screen should power up and you should be able to see red lights on Arduino board and backlight or any random display on LCD.

4 P R O G R A M M I N G I N S T R U C T I O N S

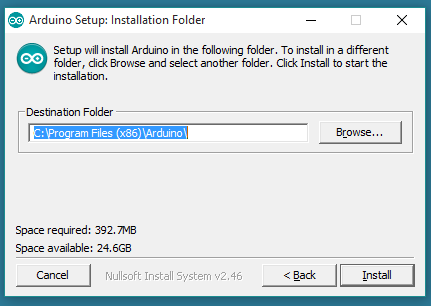
**4.1 Arduino Uno Setup**

If the module is connected to computer for programming, following instructions need to be followed

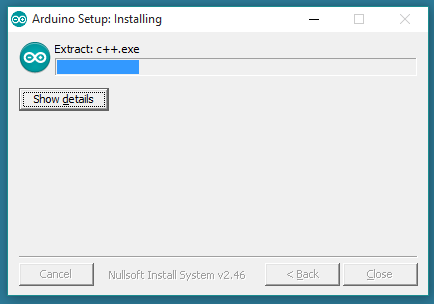
**i n s t a l l i n g s o f t W a r e** The Arduino Uno is programmed using the Arduino Software (IDE), Arduino’s Integrated Development Environ- ment. Double click on *arduino-1.8.5-windows.exe* and please allow the driver installation process when you get a warning from the operat- ing system.



Choose the components to install



Choose the installation directory (we suggest to keep the default one)



The process will extract and install all the required files to execute properly the Arduino Software (IDE)

**i n s t a l l i n g a d d i t i o n a l l i b r a r i e s** Unzip libraries.rar and copy the folders *SPFD5408* − *master* etc to

*C* : \*ProgramFiles*(*x86*)\*Arduino*\*libraries*

**c o n n e c t i n g b o a r d** Connect your Uno board with an A B USB

cable; sometimes this cable is called a USB printer cable



The USB connection with the PC is necessary to program the board and not just to power it up. The Uno automatically draw power from either the USB or an external power supply. Connect the board to your computer using the USB cable. The green power LED (labelled PWR) should go on.

**i n s t a l l t H e b o a r d d r i V e r s** If you downloaded and expanded the Zip package or, for some reason, the board wasn’t properly recognized, please follow the procedure below.

*•* Click on the Start Menu, and open up the Control Panel.

*•* While in the Control Panel, navigate to System and Security. Next, click on System. Once the System window is up, open the Device Manager.

*•* Look under Ports (COM & LPT). You should see an open port named "Arduino UNO (COMxx)". If there is no COM & LPT section, look under "Other Devices" for "Unknown Device".

*•* Right click on the "Arduino UNO (COmxx)" port and choose the

"Update Driver Software" option.

*•* Next, choose the "Browse my computer for Driver software" option.

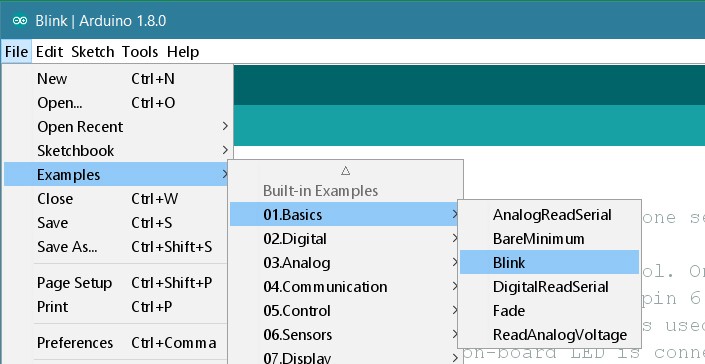
*•* Finally, navigate to and select the driver file named "arduino.inf", located in the "Drivers" folder of the Arduino Software download (not the "FTDI USB Drivers" sub-directory). If you are using an old version of the IDE (1.0.3 or older), choose the Uno driver file

named "Arduino UNO.inf"

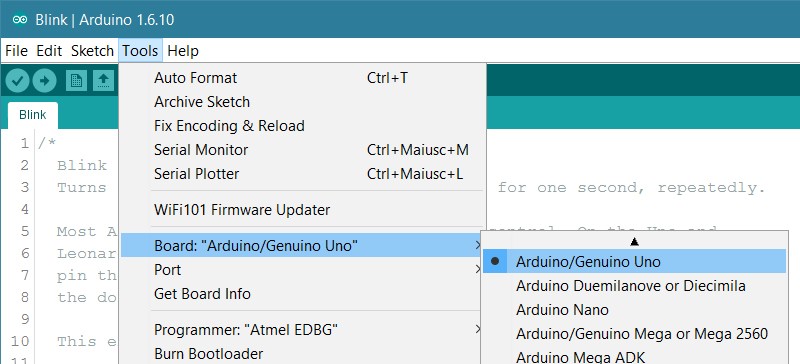
*•* Windows will finish up the driver installation from there.

**o p e n y o u r f i r s t s K e t c H** Open the LED blink example sketch:

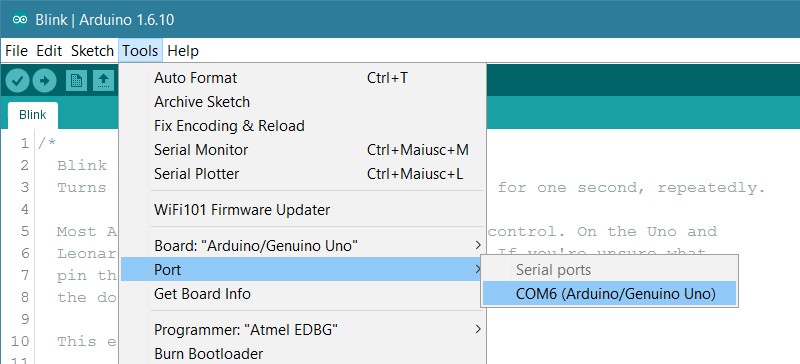
File > Examples > 01.Basics > Blink.



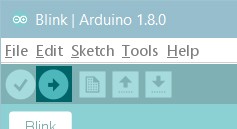
**s e l e c t y o u r b o a r d t y p e a n d p o r t** You’ll need to select the entry in the T ools > Board menu that corresponds to your Arduino or Genuino board.



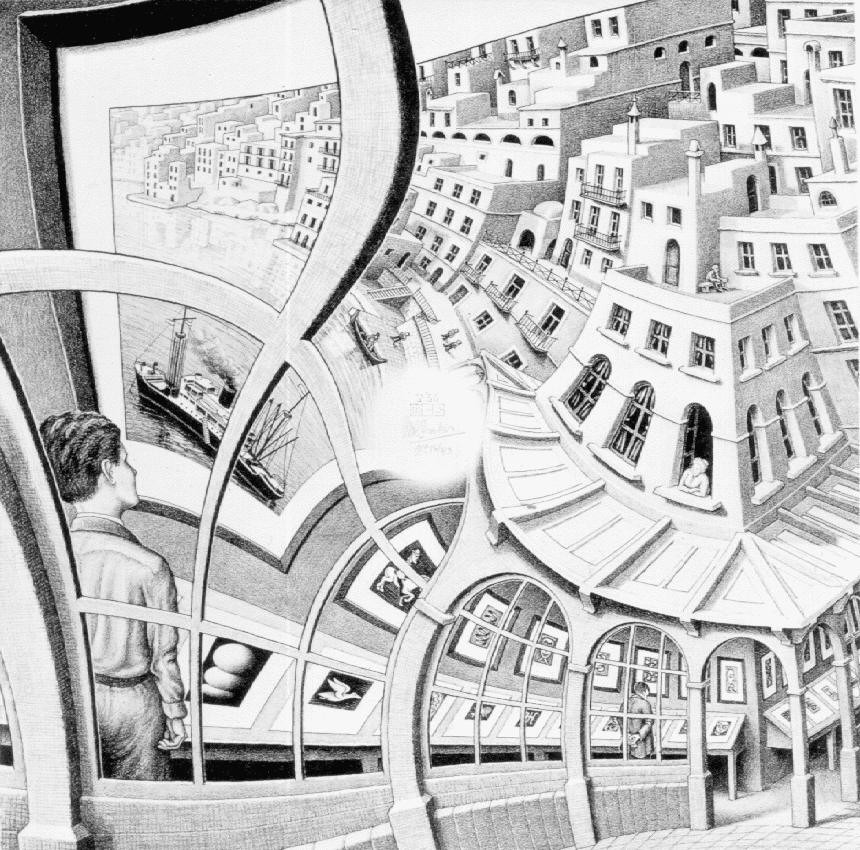
Select the serial device of the board from the Tools | Serial Port menu. This is likely to be COM3 or higher (COM1 and COM2 are usually reserved for hardware serial ports). To find out, you can disconnect your board and re-open the menu; the entry that disappears should be the Arduino or Genuino board. Reconnect the board and select that serial port.



**u p l o a d t H e p r o g r a m** Now, simply click the "Upload" button in the environment. Wait a few seconds - you should see the RX and TX leds on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar.



A few seconds after the upload finishes, you should see the pin 13 (L) LED on the board start to blink (in orange). If it does, congratulations! You’ve gotten Arduino or Genuino up-and-running. If you have problems, please see the [troubleshooting suggestions](https://www.arduino.cc/en/Guide/Troubleshooting).



**Figure 2:** An example of a floating figure (a reproduction from the *Gallery of prints*, M. Escher, from <http://www.mcescher.com/>).

**4.2 Upload our program**

*•* Open *tftpaint.ino* in Arduino by double clicking the file

*•* Click the upload button (looks like *forward arrow* symbol)

**4.3 Upload bmp in memory card**

*•* Copy files *screen.bmp, screen2.bmp, screen3.bmp* to the memory card (less than or equal to 4 GB)

*•* Insert the memory card to slot in LCD

5 S E T U P R E Q U I R E D

Reference to Figure 2.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetuer odio sem sed wisi.

**5.1 Subsection**

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dolor.

**5.1.1 *Subsubsection***

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**W o r d** Definition

**c o n c e p t** Explanation

**i d e a** Text

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*•* First item in a list

*•* Second item in a list

*•* Third item in a list

**5.1.2 *Table***

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pede. Ut suscipit enim vel sapien. Donec congue. Maecenas urna mi, suscipit in, placerat ut, vestibulum ut, massa. Fusce ultrices nulla et nisl.

**Table 1:** Table of Grades

Name

|  |  |  |
| --- | --- | --- |
| First name | Last Name | Grade |
| John | Doe | 7.5 |
| Richard | Miles | 2 |

Reference to Table 1.

**5.2 Figure Composed of Subfigures**

Reference the figure composed of multiple subfigures as Figure 3 on the following page. Reference one of the subfigures as Figure 3b on the next page.

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**(a)** A city market. **(b)** Forest landscape.



**(c)** Mountain landscape. **(d)** A tile decoration.

**Figure 3:** A number of pictures with no common theme.

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ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Aenean quis mauris sed elit commodo placerat. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Vivamus rhoncus tincidunt libero. Etiam elementum pretium justo. Vivamus est. Morbi a tellus eget pede tristique commodo. Nulla nisl. Vestibulum sed nisl eu sapien cursus rutrum.

6 S E T U P F I L E S ( S O F T W A R E )

A statement requiring citation [1].

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Some mathematics in the text: cos π = −1 and α.

R E F E R E N C E S

[1] A. J. Figueredo and P. S. A. Wolf. Assortative pairing and life history strategy - a cross-cultural study. *Human Nature*,

20:317–330, 2009.