Andhra Pradesh State Skill Development Corporation

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Embedded systems

Button and LED interfacing to the ARM7

BUTTON INTERFACING WITH ARM 7

Aim : To interface button with ARM 7.

Software:

Keil uVision 5

Magic Flash Tool

Before getting into the project we must know few things about the led modes of operation and about the led Hex codes

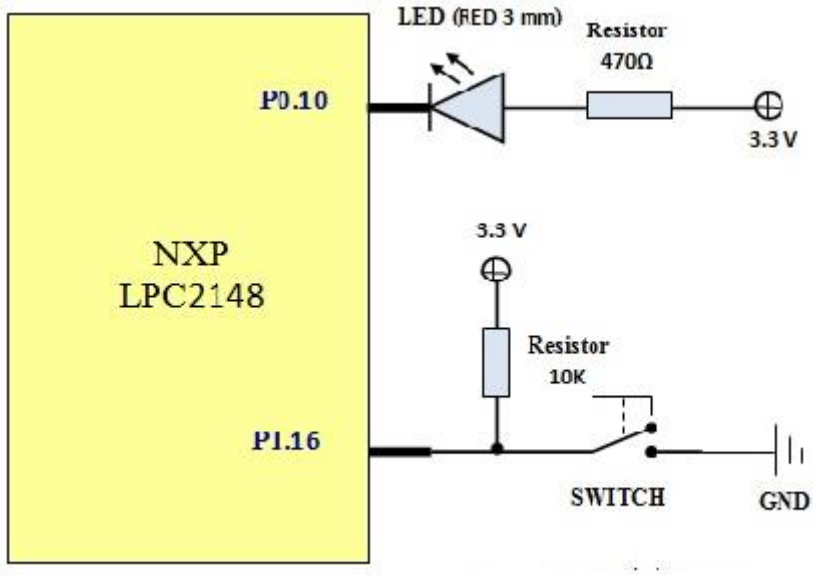
Components required:

ARM7-LPC2148 Microcontroller board
Led
switch
resistor
Breadboard
Connecting Wires
Micro USB cable

Theory:

A switch is an electrical component that can break an electrical circuit, interrupting the current or diverting it from one conductor to another. A switch may be directly manipulated by a human as a control signal to a system, or to control power flow in a circuit. A simple switch has an open state and closed state. However, a microcontroller needs to see a definite high or low voltage level at a digital input. A switch requires a pull-up or pull-down resistor to produce a definite high or low voltage when it is open or closed. A resistor placed between a digital input and the supply voltage is called a “pull-up” resistor because it normally pulls the pin’s voltage up to the supply.

Circuit Diagram:



Procedure:

1.Open Keil µVision from the icon created on your desktop.
2.Create a new project on Kiel with the appropriate name and destination.
3.Take a new text file and write the code in a text editor.
4.Save the text file with ".c "extension.
5.add ".c " file to source group and check errors and warnings.
6.change the target options and create a hex file.
7.Now open flash magic to burn hex file into the development board.
8.Connect the hardware circuit and Connect your development Board to the USB port of your computer.
9. In the flash-magic window select the target device, serial port, board rate, and hex file.
10. Click on the start button to burn the hex file to the development board.
11. after uploading press the reset button and check the output

Code:

```
/* if button is pressed turn on
 led turn off led

 not pressed the output is
 logic 1 pressed the output is
 logic 0

 assigne logic 0 for turn
 off led assigne logic 1
 for turn on led*/

 #include<lpc21xx.h>

 #define led 0x00000001
 //P0.0 #define button
 0x00000002 //P0.1

Int main(){
        IODIR0|=led;
       while(1){

              if(((IOPIN0) & (button)) == 0)
                     IOSET0|=led;
              else
                     IOCLR0|=led;

              }
       }
```

Result: when you press the button the LED gets ON else, the LED gets OFF.