RFID Reader EM18 Interface with PIC18F4550

Overview of RFID

EM18 RFID reader module is used to read RFID cards that work at 125 kHz.

When an RFID card comes in the range of the reader, the unique data in the card is received by the reader in the form of an RF signal.

The reader then transmits this data in byte form on its serial transmit pin.

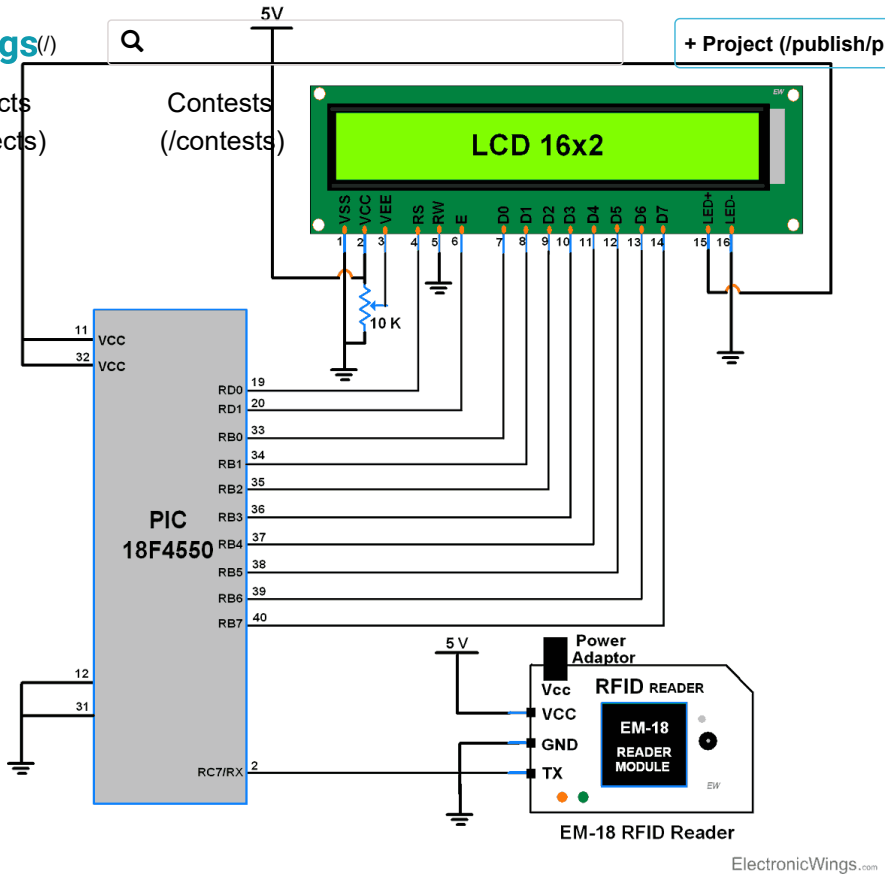
This data can be read by a microcontroller using USART communication or can be viewed on the PC terminal.

For more information on the EM18 RFID reader and how to use it, refer to the topic RFID Reader EM18 (http://electronicwings.com/sensors-modules/rfid-reader-em18) in the sensors and modules section.

For information on USART in PIC18F4550 and how to use it, refer to the topic on USART in PIC18F4550 (http://electronicwings.com/pic/pic18f4550-usart)in the PIC inside section.

EM-18 RFID Reader Module

Connection Diagram of RFID EM-18 to PIC18F4550



RFID Reader Module Interfacing with PIC18F4550

Read RFID EM-18 using PIC18F4550

Read the RFID tags using an EM-18 RFID reader and send this data serially to the PIC18F4550 microcontroller. Then, display the 12 Byte unique ID on the LCD16x2 display.

RFID EM-18 Code for PIC18F4550

- Initialize USART communication.
- Initialize the LCD16x2 display.
- Now, wait for 12-byte to receive and then display it on LCD16x2.

Program

```
 * 125 kHz RFID interface with PIC18F4550
 * http://www.electronicwings.com
 *
 */


#include <string.h>
#include <stdio.h>
#include <pic18f4550.h>
#include "Configuration_Header_File.h"
#include "LCD_16x2_8-bit_Header_File.h"
#include "USART_Header_File.h"
void main(void)
{
    unsigned char i;
    unsigned char ID[13];
    OSCCON=0x72;          /* select internal oscillator freq = 8 Mhz */
    LCD_Init();           /* initialize LCD16x2 */
    USART_Init(9600);   /*initialize USART Communication with 9600 baud ra
    memset(ID,0,13);
```

Video of RFID Reader EM-18 using PIC18F4550

Components Used

Powered By (https://www.mouser.in?utm_source=electronicswings&utm_medium=display&utm_campaign=mouser-componentslisting&utm_content=0x0)

RFID Reader EM18 EM18 RFID reader module is used to read 125 kHz...	X 1	
LCD16x2 Display LCD16x2 Display	X 1	(https://www.mouser.com/ProductDetail/Adafruit/1447?qs=XAKIUOoRPe6AClmsjw7y7g%3D%3D&utm_source=electronicswings&utm_medium=display&utm_campaign=mouser-componentslisting&utm_content=0x0)
PIC18f4550 PIC18f4550	X 1	(https://www.mouser.in/ProductDetail/Microchip-Technology/PIC18F4550-I-P?qs=oKK8NaWdAJs8nLDXBGwMXw%3D%3D&utm_source=electronicswings&utm_medium=display&utm_campaign=mouser-componentslisting&utm_content=0x0) Datasheet (/components/pic18f4550/1/datasheet)

Components Used

PICKit 4 MPLAB PICKit 4 MPLAB	**X 1**	(https://www.mouser.in/ProductDetail/Microchip-Technology/PG164140?qs=r5DSvlrkXmLKDuYNJlmLWw%3D%3D&utm_source=electronicswings&utm_medium=display&utm_campaign=mouser-componentslisting&utm_content=0x0) Datasheet (/components/pickit-4-mplab/1/datasheet)

Downloads

PIC18F4550 RFID Interface Project File	Dow nloa d (/api/download/platform-attachment/333)

Comments

Comment

ssjvegeta999
(/users/ssjvegeta999/profile)
2019-03-29 03:36:15

What version of XC8 and IDE did you use for this project? I can't seem to get it to build properly using the newest version of XC8 v2.05 and IDE v5.10. Would it be possible for you to update the code?
Reply Like

lokeshc
(/users/lokeshc/profile)
2019-03-29 14:50:54

what error you are getting while building project?
Because it is working in my latest version of xc8 & MPLABX IDE.
Reply Like

ssjvegeta999
(/users/ssjvegeta999/profile)
2019-03-29 22:32:53

Well here they are. When I click on the errors towards the bottom they take me to the make file.

LCD_16x2.c:21:: warning: (520) function "_LCD_Clear" is never called
USART_Source_File.c:20:: warning: (520) function "_USART_TxChar" is never called

USART_Source_File.c:40:: warning: (520) function "_USART_SendString" is never called

RFID.c:19:: warning: (1518) direct function call made with an incomplete prototype (LCD_Init)

RFID.c:27:: warning: (1518) direct function call made with an incomplete prototype (USART_RxChar)

USART_Source_File.c:34:: warning: (1518) direct function call made with an incomplete prototype (_NOP)

:0:: error: (499) undefined symbol:

nbproject/Makefile-default.mk:169: recipe for target 'dist/default/production/Try2.X.production.hex' failed

nbproject/Makefile-default.mk:90: recipe for target '.build-conf' failed

nbproject/Makefile-impl.mk:39: recipe for target '.build-impl' failed
make[2]: *** [dist/default/production/Try2.X.production.hex] Error 1
make[1]: *** [.build-conf] Error 2
make: *** [.build-impl] Error 2
Reply Like

lokeshc
(/users/lokeshc/profile)
2019-03-30 12:32:53 • Edited

Just do one thing replace pic18f4550.h in USART_Header_File.h with xc.h & then compile it.
It will compile now without error.
Cheers!!!
Reply Like

ssjvegeta999
(/users/ssjvegeta999/profile)
2019-04-01 06:57:09

It actually worked thanks!
I am not sure what the "&amp" was supposed to do since I did not include that, and when I did, it gave me errors.

The RFID reader I am using communicates through UART not USART. How could I modify the existing code to have it work? Or do you think that it should work anyway since you declared a baud rate of 9600?
Reply Like

lokeshc
(/users/lokeshc/profile)
2019-04-01 20:08:34

it will work. No need to modify the existing code.
If you are using synchronous communication of USART then code needs to change. But for RFID it will not change.
Reply Like

talhanawaz543
(/users/talhanawaz543/profile)
2019-06-07 09:54:18

my code is not working because I can't include #include "Configuration_Header_File.h"
#include "LCD_16x2_8-bit_Header_File.h"
#include "USART_Header_File.h" these line.....whats wrong with my code???
Reply Like

lokeshc
(/users/lokeshc/profile)
2019-06-07 10:56:28 • Edited

Check whether your project folder, does these files exist in your folder or not. If it is not existed in your folder then compiler will unable to get file and throw error.
Reply Like

talhanawaz543
(/users/talhanawaz543/profile)
2019-06-07 23:36:48

how to include these files????
Reply Like

rrajvk501
(/users/rrajvk501/profile)
2020-02-02 11:07:30

Pls provide code for same for mplab ide.
Can u pls provide all program c file
Reply Like

architsinghal8858
(/users/architsinghal8858/profile)
2020-02-07 11:54:56

can you give us the pcb design of this but we dont want the lcd part instead of that a single buzzer
Reply Like

architsinghal8858
(/users/architsinghal8858/profile)
2020-02-07 11:55:55

sorry pcb layout
Reply Like