DATA LOGGER

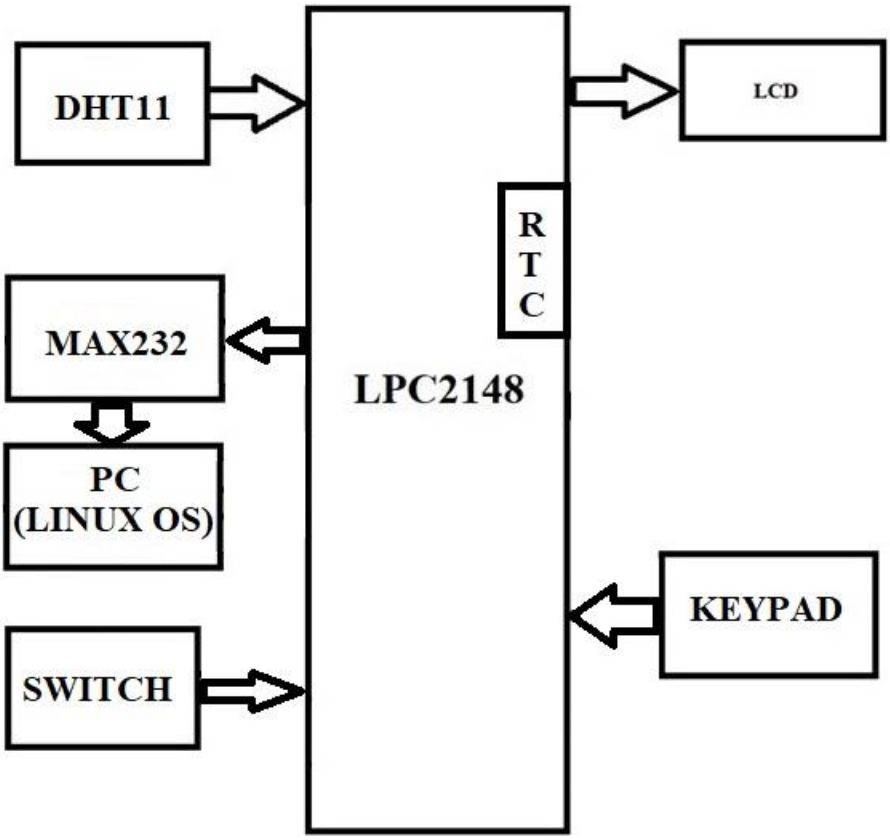
AIM :

The objective of this project is to design a device that monitors some set of Data (either through sensors or other external devices) need to be collected that stores at one place.

INSIGHT:

- Good knowledge of C-Programming.
- Knowledge of Embedded-C programming
- Thorough with the LPC2148 Architecture, General purpose I/O Interface
- Understanding of COM port reading on Linux platform.
- Understanding of LCD and KEYPAD.

BLOCK DIAGRAM:



REQUIREMENTS:

HARDWRAE REQUIREMENTS:

- LPC2148
- LCD
- SWITCH
- 4X4 KEYPAD
- DHT11
- USB TO UART CONVERTER

SOFTWARE REQUIREMENTS:

- EMBEDDED C – PROGRAMMING
- KEIL-C COMPILER
- FLASH MAGIC
- GCC COMPILER

STEPS TO BE FOLLOWED TO COMPLETE YOUR PROJECT:

- Create New Folder in your server and save that folder with your project name.
- Copy what you done files lcd.c, lcd.h, delay.c, delay.h, keypad.c, keypad.h, rtc.c, rtc.h, uart.c, uart.h into project folder. (Note: use on-chip RTC to read real-time clock information)
- Individually can check each and every module.
- First check lcd to display character constant, string constant and integer constant.
- Next check keypad peripheral by displaying key values on LCD.
- Read Inbuilt RTC VALUES and display it on LCD.
- Read DHT11 values and display on LCD. (download DHT11 reference code from LMS)
- If above steps are completed create new file with projectmain.c add all peripheral definition files and write below steps in projectmain.c file.
- Initialize all peripherals
- In continuation task, read Current Time from inbuilt RTC, Temperature and relative humidity from DHT11 and display on LCD as well as transmit these values on PC (Linux OS) through UART.

Note: For every sec, need to display the RTC information along with sensors information. But for every 3/5 mins need to update to the PC through UART communication.

- Pattern Should be like this
  HH:MM:SS DAY DD/MM/YY TEMP RH
  (for example, 14:15:00 MON 01/01/24 35 65)
- The above-mentioned format sending from microcontroller board to Linux PC through UART. In Linux system, collect these values though com port and update in excel sheet by using one application program written in C. (how to read comport information, one reference code updated in LMS under reference codes. Download that code and use according to your requirement)
  Result format in Excel sheet:

TIME	DATE	DAY	TEMPERATUER (IN degree C)	RELATIVE HUMIDITY(in %)
14:15:00	01-01-2024	MON	35	65

- When Interrupt is requested, write functionality in ISR to EDIT the TIME using keypad function. Use menu-based editing so that it is easy to edit only required information.

- Based on the user requirement, change the RTC information related to current timing information and update those values into RTC in specified memory locations.

- If you're getting this output then your project is completed.

********** **ALL THE BEST** **********