LED Display And Control Board

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Project Code : LKM2B-02
In the project we designed and assembled an **LED display board**. This LED display board is composed of **LED matrices** that can display two colors, red and green.

**Light Emitting Diodes**, generally called **LEDs**, look like tiny light bulbs but do not have any filament. They can be used in many different areas, such as in digital lights, traffic lights, notice boards and even jumbo television screens. Nowadays, LED is used more and more in electronic devices. One of the usages of LED is to make the LED matrix. The matrix can display a lot of characters and graphics. A lot of LED matrices placed together become an LED matrix display. The LED matrix display can display messages or some simple pictures.

The aim of the project was to design and build a bicolor (red and green) color mixing LED display, a control board, and a user interface. The final product has **at least 32 by 32 pixels**. Also, it can display English, Chinese characters and pictures **without any connection to a computer**.

Our objective was to **simplify** the circuit of the present LED control board. The second objective was to decrease the size of the control board and increase that of the LED display. Further, a User Interface had to be developed so that even people unfamiliar with programming could use it.
Controller Board
- Main Controller
- Row Controller
- Column Controller

Data Input
- External Communication Interface

User Interface

32x32 LED Matrix

Display Mode Flow Chart

System Block Diagram

- Fetch Data from EEPROMs
- Import 32-bit Data to LED Display
- Scan the next row
- All Data is Fetched
- YES
- END
- NO
Here is a real example

A Photo Before Processing

Send Hex Data
00000000000000000009C0000023FEB
E000C47F50F8319E1020000003817870
03E050CC01D02B8200350A808003855
80000001A40000000181000200402A0
1779
0.1

A Finished
Photo
Displayed
on the LED
Matrix with
32 X 32
pixels

Converted to Bit Data for the Circuit

Success!!!