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Chromatogram Reader

Microprocessor Lab Project

A device intended to read color data from test strips

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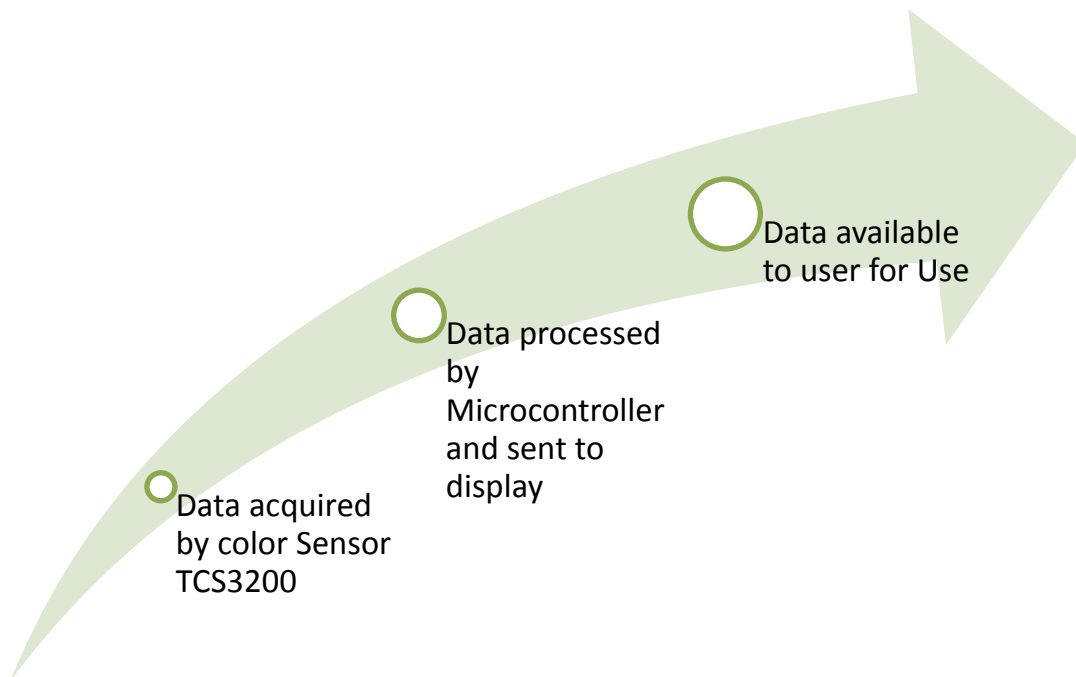
Acknowledgement

We would like to acknowledge Nitin pawar Sir for his guidance and Jaivardhan Lal for his inputs at various stages of integration.

Abstract

The proposed device is intended to read data basically from pigment chromatograms. The utility arises due to mismatched interpretation of data when viewed by different observers in different environmental conditions. The device breaks the incoming data into respective Red, Green & Blue Value of the sample which can be observed by the user and used as per requirements in comparison or data acquisition.

Flow Diagram



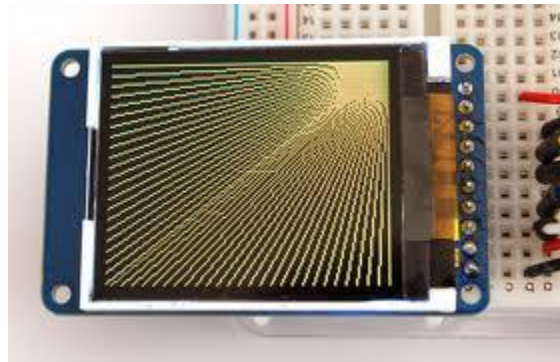
Hardware Used



TCS3200 Light to Frequency Converter



Stellaris Cortex M-4 ARM



Display Unit- ST7735

Algorithm

The Tested sample's colour is converted to a frequency by the TCS3200 sensor which is fed into the Cortex M-4 Processor. The code uses pulse capturing by detecting falling edges in the pulse train to calculate the color detected. The data is then further converted into suitable form for Display on the screen using a Library for the display unit.

The code can be found at- http://home.iitb.ac.in/~anurag_meena/coloursense.html

FURTHER DEVELOPMENTS

This project can be further developed by designing the device to make it operable without computer Using batteries and to account for UV illumination of sample to increase the detecting capabilities of the device. A front end can be developed for user friendly display of data on Computer.

CODE & References

Code can be found at->http://home.iitb.ac.in/~anurag_meena/coloursense.html

Datasheet- TCS3200 -><http://extremeelectronics.co.in/datasheets/TCS3200-E11.pdf>

LCD Library-> Library by Prof.Jonathan W. Valvano
<http://users.ece.utexas.edu/~valvano/arm/ST7735.c>