

Car game using GLCD and accelerometer (Mini Project)

Group Members :-

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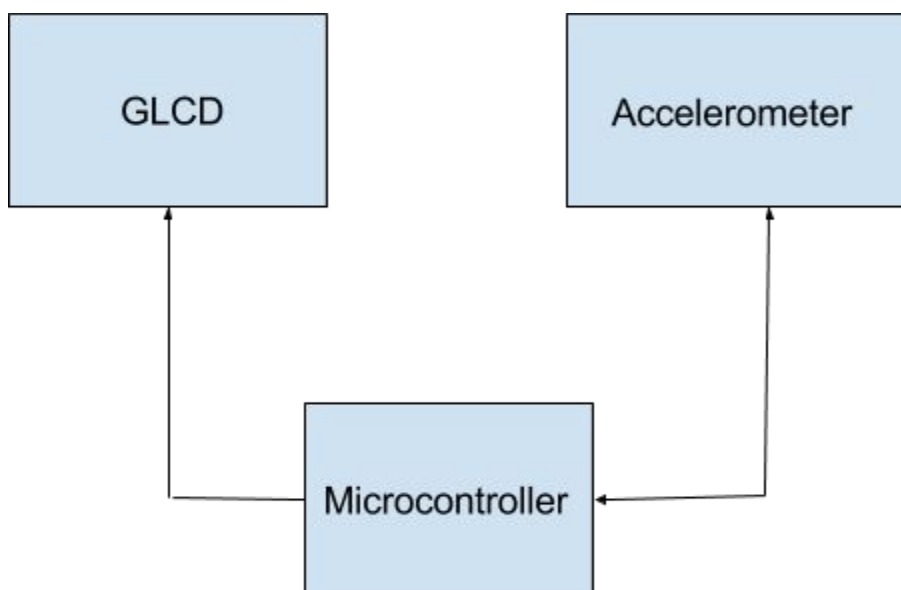
TA(s) - Saujal

Group No. -

Project objective and deliverables

The aim of project was to gain a hands on experience on how to use accelerometer and GLCD and integrate both the devices using PT-51. For this we developed an interactive car game using GLCD and accelerometer.

Block-diagram of your design KCM



Description of the design

Components used :-GLCD (128x64),ADXL345,Pt-51.

Interfacing of accelerometer with microcontroller using I2C :-

Started the accelerometer by putting it in measuring mode. Then read the x-tilt from 0x32,0x33 and y-tilt from 0x34,0x35.

Device Addressing:-

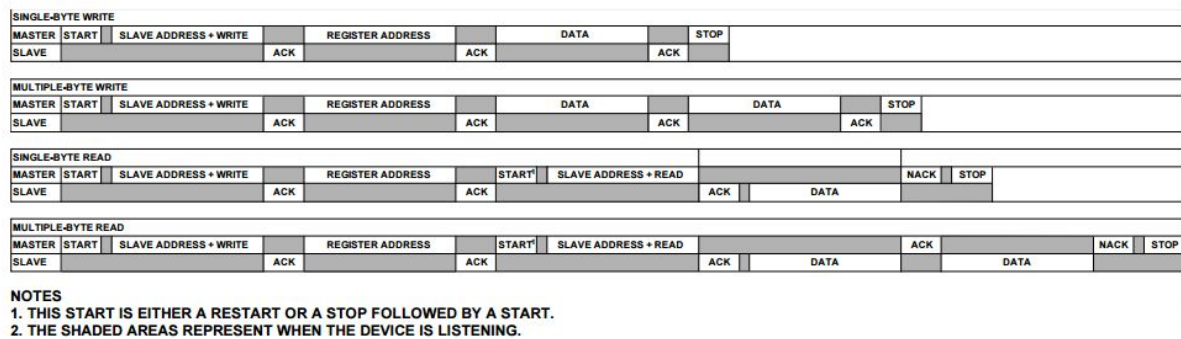


Figure 41. I2C Device Addressing

Timing Diagram:-

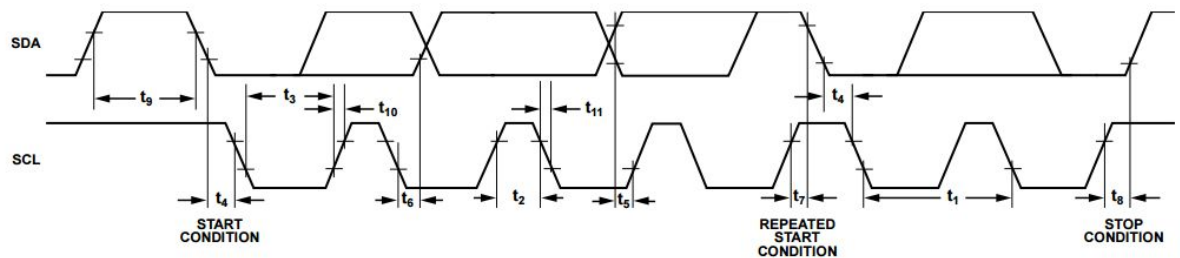


Figure 42. I2C Timing Diagram

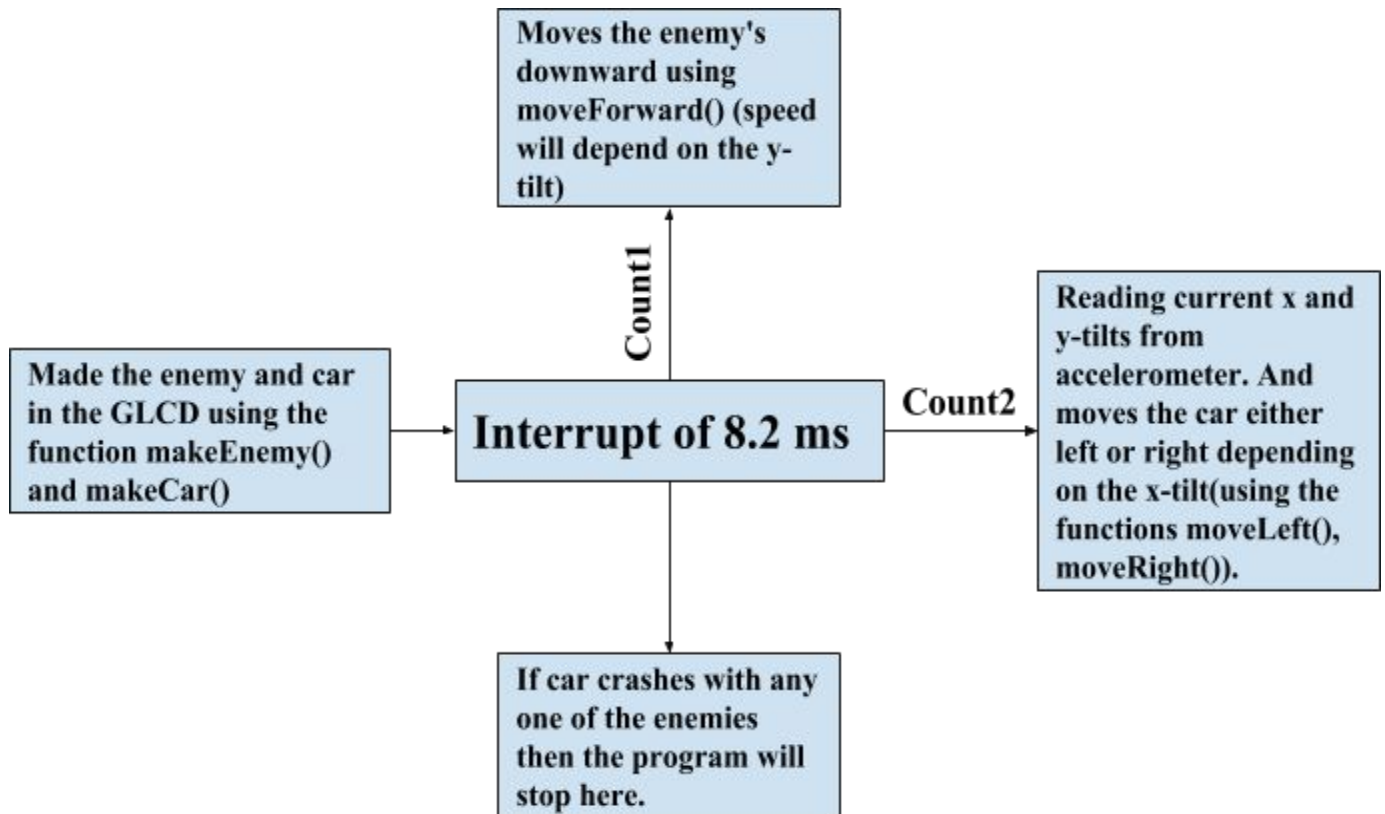
Based on the above Timing Diagram we made the functions ADXLRead() and ADXLSend() to read x and y-tilts.

Interfacing of GLCD with microcontroller :-

We made the basic functions GLCD_CmdWrite() and GLCD_WriteData() using the GLCD material (given to us), from these functions we made a function WriteAtXY().

And using this function we made different functions like makeCar(), makeEnemy(), moveLeft(), moveRight(), moveforward(), clearAll(). These calling of these functions is shown in the Flow-chart below :-

Flow-chart of the program :-



Challenges faced and outcome

The major problem we faced was about accelerometer. It took us considerable amount of time to figure out how accelerometer communications works. But as we figured out, we were able to implement all the requirements.

Shortcomings/ Future improvements

There can be various changes which one could implement, so as to make the game visually more appealing. The shape of car and obstacles can be made of various shape as the level increases.