Semester Project SEP4E

This year the project will be to design and implement a game.

You will:

- Design, document, implement and test a real-time embedded application to control the game.
- Design, document, implement a simple application on a pc that can cooperate with the embedded system.

The drivers for the hardware will be given to you, so you can concentrate on the application and all the real-time aspects involved.

Game Console Platform

Block diagram for Game Console platform can be seen here

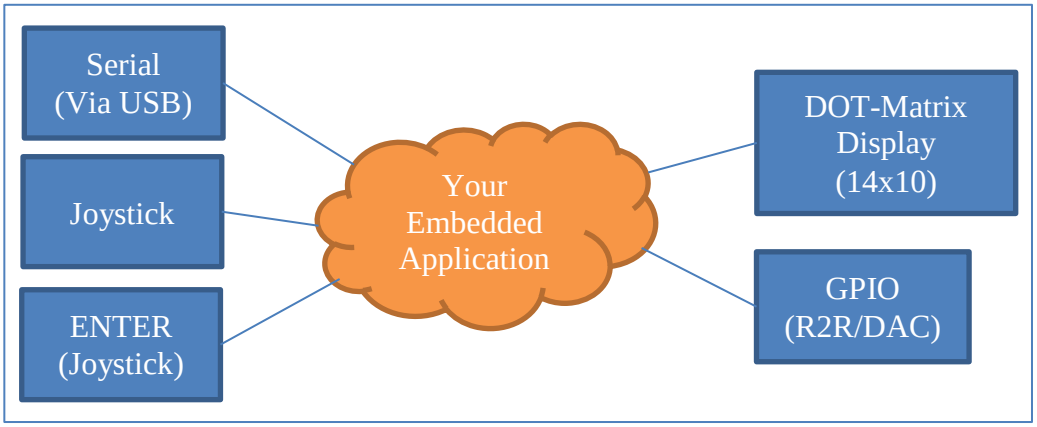


Figure 1 Game Console Block Diagram

The functionality of different blocks could be

DOT-Matrix Display: Obvious this will be where the output of your application will be shown.

GPIO: Can be used to send data to the DAC (R2R) about which task is running.

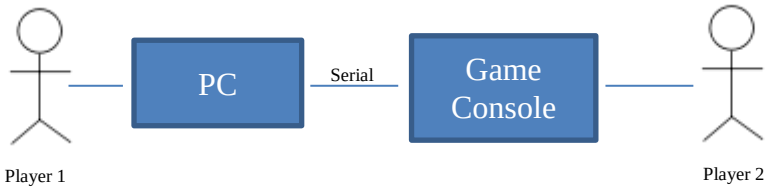
Joystick: Can be used as user input device for first user.

ENTER: The middle button on the Joystick. Can be used as user input device for first user.

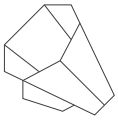
Serial: Can be used to communicate with the second user, who will be using a pc as input device.

The Application

Create a two player game, with one user using the Joystick on the Game Console as input device, and the second user a small application on a pc.



The small pc application must only handle simple key inputs (like found on the joystick). It must also be possible to get some statistical information shown on the pc.



NOTE: All game logic must be implemented on the Game Console together with sampling of the and statistical information.

To secure the communication between the Game Console and the pc a reliable protocol must be developed and used.