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Project Proposal

Dungeons and Dragons is a table top role playing game that is heavily based on math and random number generation (dice rolls) where you create a character using the races and classes from the guide book. Due to all the intricacies of character creation, some people are turned off by the game. This is where my project comes in. I will be designing a program to simulate character creation, dice rolls, battle simulation, and character data saving to the FairCom database.

Other approaches to this idea have been made and also been successful, those attempts are actually any full role playing video game. Dungeons and Dragons is actually the grandfather to most if not all role playing game. My approach will be lighter weight and simple to use as well as free to anyone who wants it.

My goals with this project will come in three different phases which are also the milestones for completion. First phase is to get all the character races, classes, and dice rolling programmed in to begin the character creation process. The next phase would be programming in the monsters to simulate basic combat sequences. Finally in the last phase I will be setting up my program to save and load to the FairCom database.

The benefit of this project would be an easier way to get started with Dungeons and Dragons which will hopefully attract more people to the game. I expect this program to do as stated above, help generate characters, perform “dice” rolls, simulate fights, and save/load to the FairCom database.

For the bulk of the program, I will be using a Raspberry Pi 2 and communicating to the lab boards for implementing the FairCom database. On the Pi2 I will use two push buttons and LEDs to indicate saving/loading to the database. Along with that, the way I’ll be connecting the Pi2 to the boards in the lab will be using wireless connection. My RPi2 will connect to MizzouWireless to interface with the lab boards and then through the lab boards, I will save/load to/from the databse.

Within the program I will be using multiple threads to simulate dice rolls, networking to connect my RPi2 to the boards in the lab, FairCom to save/load character data, Semaphores for data output, and RT tasks to await commands.

For creating the characters I will use many different classes and inheritance. Characters need a race and a class (role) to be complete. Races have different strengths to offer, like stat enhancements or extra abilities. Clases (roles) determine how the player plays their character. Are they a warrior who is on the frontlines, are they a ranged player attacking from a distance, or a support player healing those in need? The races will have a master class called Race and under that all the races and sub races will be made. The class (role) of the character will be also developed using classes. The class (role) and race will be bundled together within another class called PlayerCharacter.

For this program the RPi2 will be overly sufficient in running this program so there are no system limitations for that part. The only limitation I will have is the fact that FairCom only runs on the boards in the lab. That is where the networking portion of this project comes in.