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Design 1 Proposal

1) Sample analog input from input device using A/D.

A potentiometer will be used to vary the amplitude of output sound from the speaker.

2) Sample digital input.

Buttons will be used to sample digital input. A switch will also be used to turn on/off the system.

3) Process input data on micro-controller.

Inputs from the buttons will be used to navigate various choices that users will have.

4) Generate analog output based on input using D/A.

Audio that indicates when the user's Pokémon has low health will be played through the speaker, using the DAC to output a waveform to the LM386 audio amplifier, which will drive the speaker.

5) Generate digital output

LEDs (green, yellow, red) will be used to display HP.

6) Show status on LCD.

Text will be output on the LCD, which will allow users to choose different actions.

1) Amplify output and drive 8-ohm speaker.

The speaker will be used to output music throughout the duration of the Pokémon battle.

2) Regulate voltage.

Power will be supplied via a 9V battery, which will be stepped down to 5V for the Atmel chip.

Project Overview:

The goal of the project is to mimic the beginnings of a Pokémon game. Upon launch, the player will be welcomed to the world of Pokémon and will have to chose between three starters from the Hoenn region. Upon choosing a starter, the player will have to battle a Zigzagoon. Upon completion of this task, the player will have won. The design is as follows: One Atmel microprocessor will be used to handle speaker output, LED output, potentiometer input, button input, and LDC output. Holes will have to be included on the PCB to interface the microprocessors with the Atmel ICE. Data will have to be stored in the microcontroller to determine information such as which Pokemon has been chosen by the player, which moves correspond to that Pokémon choice, and what the stats (Attack, Defense, and HP) currently are for both the player's Pokémon and the Zigzagoon.