

## 6.111 Final Project Proposal

### iDog the virtual pet

Virtual pet is not a completely new idea. In 1997, Japanese first came out with tamagotchi, an electronic device with small display, inside which lives a pet that needs regular care and feeding from the owner. Recently, SEGA-toys marketed a palm-sized robot dog that dances to music. The owner can plug into audio input, and the dog dances to the music while the speaker in the dog plays the music. The dog can express its emotion through seven LEDs on its face, and it likes its owner giving a pat at the forehead. The way it dances is by shaking its head and moving its ears.

This project is to implement a virtual pet that can function similar to the iDog from SEGA-toys. Instead of building a robot, I will be implementing the iDog using the video interface. This project has inputs:

1. Audio input from a music player (ie iPod, mp3 player)
2. Light sensor: to determine the "pat" from the user
3. Switches to turn on the functions: sleep, play
4. Video game control input

The outputs:

1. VGA output
2. Audio output

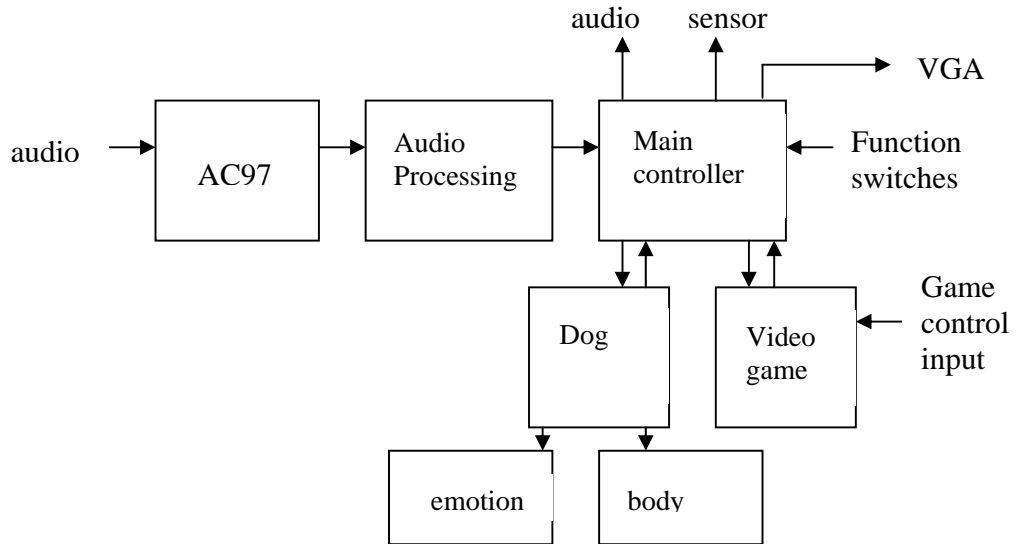
Implementation:

The design will be implemented in modules:

1. Audio Processing: To determine the beat of the music, and sends the original audio signal and the beat pulse to the main controller.
2. Dog: Video module of the dog. It has two submodules emotion and body.
  - a. Emotion:  
the module that determines the emotion of the dog, based on the parameters given by the main controller. Parameters that affect the emotion include: patting from the owner, music feed from the owner, the number of times the owner plays video game with the dog, the result of the last played video game (the dog will be very unhappy if it keeps losing to the owner in video game).
  - b. Body  
Video module of the dog. Can break down to static body parts, and dynamic parts (ear, LEDs (a.k.a eyes), head, tail) working together to express the emotion of the dogs.
3. Video game  
The game(s) that user can play with the dog. There is game control input for the user to play the game. The result of the game will be saved to main controller.

#### 4. Main Controller:

Coordinates inputs and outputs and links the modules together.



This is an individual project and I will be solely responsible for all the modules.