KTX-PC Humanoid Robot

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CS 460
Senior Capstone Experience

Project Definition

- Develop a protocol that instructs the KTX under program control from a PC
- Communication should be wireless
- The protocol can direct a specific robot
- Design a library of functions for basic behaviors
- The functions should have parameters (raise_left_arm(height,speed))
  - Consider using a layered approach
  - A set of low level primitive states (poses)
  - A set of basic activities (functions) that consist of combinations of primitive states
  - Functions with parameters that employ the basic activities to perform a task
- Write a PC program using the library that has the KTX accomplish a task and modifying a behavior from within the program

The KTX-PC

- Has a PC on it’s back that runs Windows XP
- 11 Servo motors
- VSRC003 PC board in front for controlling servo motors

Method

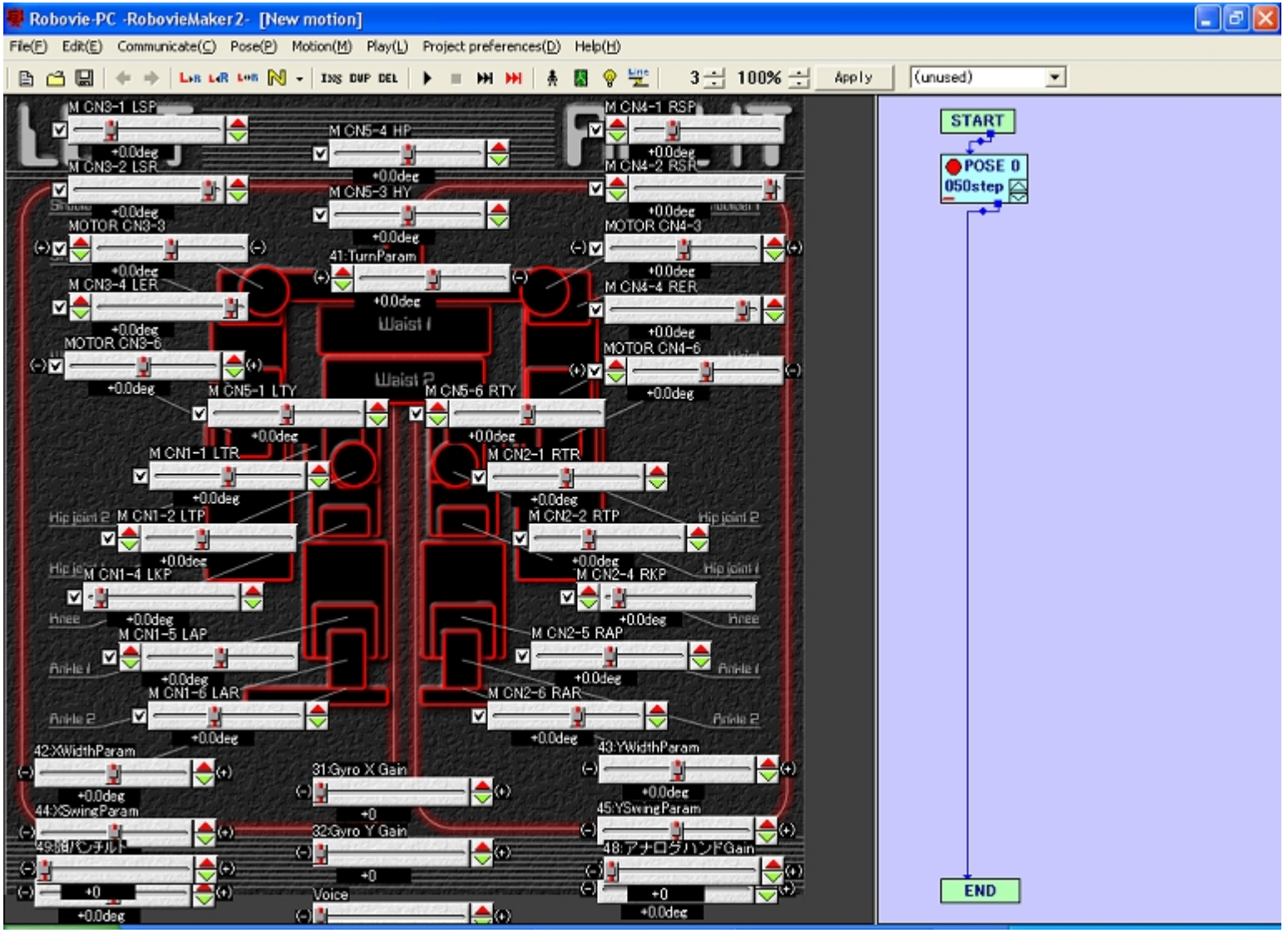
- Read
  - Lots of documentation
  - Often vague, need to cross reference
- Investigate
  - Educated guessing and checking

Solutions

- Creating documentation for clarification

Solutions

- RobovieMaker Environment



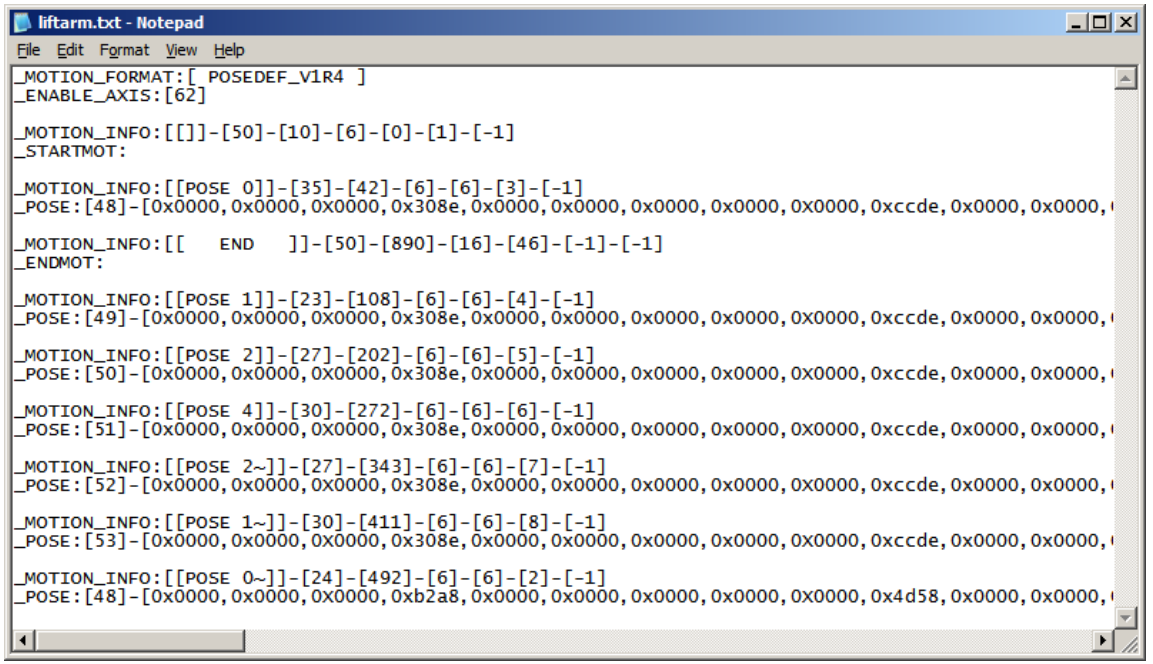
Exceptions

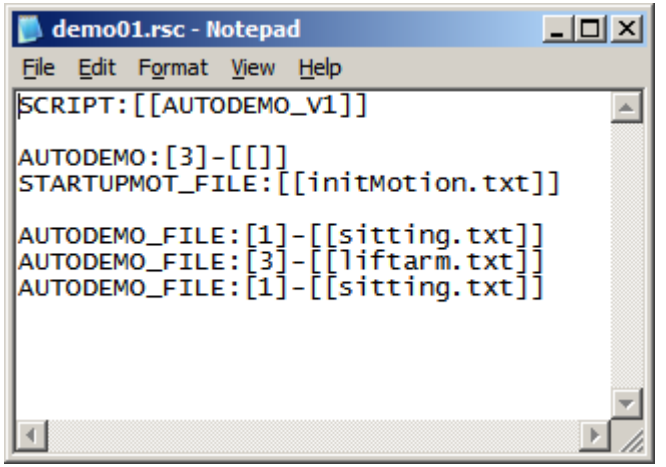
- SDK problems
- Wrong version of Visual Studio

```
user\desktop\sdkproj\sdkproj.cpp(41) : error C2664: 'VSRC003_LoadMotion' : cannot convert parameter 1 from 'char [260]' to 'TCHAR *'
unrelated; conversion requires reinterpret_cast, C-style cast or function-style cast
user\desktop\sdkproj\sdkproj.cpp(59) : error C2664: 'VSRC003_LoadMotion' : cannot convert parameter 1 from 'char [260]' to 'TCHAR *'
unrelated; conversion requires reinterpret_cast, C-style cast or function-style cast
user\desktop\sdkproj\sdkproj.cpp(122) : error C2440: '=' : cannot convert from 'char [11]' to 'LPCWSTR'
unrelated; conversion requires reinterpret_cast, C-style cast or function-style cast
user\desktop\sdkproj\sdkproj.cpp(124) : error C2440: '=' : cannot convert from 'char [260]' to 'LPWSTR'
```

RobovieMaker

- Motions and Demonstrations





Extensions

- Controlling the robot using the PC on it’s back
- Investigate real time motion control and face detection