繪圖程式設計 Assignment1

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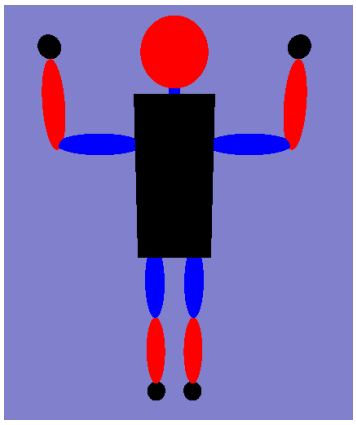
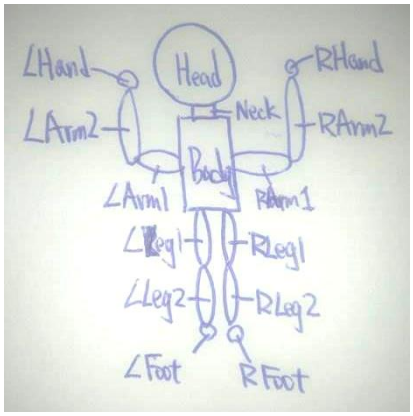
主題: 人型機器人



架構:




```
// Body
scaleBody = scale(scaleOne, vec3(1.4f, 3.0f, 0.8f));
rotateBody = rotate(scaleOne, degree_body, vec3(0.0f, 1.0f, 0.0f));
transBody = translate(rotateBody, vec3(0.0f, 0.0f, 0.0f+a));
mBody = transBody * scaleBody;
mvp = projection * view * mBody;
glUniformMatrix4fv(mvLoc, 1, GL_FALSE, value_ptr(mvp));
glUniform1i(colLoc, 3);
glDrawArrays(GL_TRIANGLES, 0, 36);


// Neck
scaleNeck = scale(scaleOne, vec3(0.2f, 0.2f, 0.2f));
rotateNeck = rotate(transBody, 0.0f, vec3(0.0f, 1.0f, 0.0f));
transNeck = translate(rotateNeck, vec3(0.0f, 0.75f, 0.0f));
mNeck = transNeck * scaleNeck;
mvp = projection * view * mNeck;
glUniformMatrix4fv(mvLoc, 1, GL_FALSE, value_ptr(mvp));
glUniform1i(colLoc, 1);
glDrawArrays(GL_TRIANGLES, 0, 36);
```

方式是對每一個 Part 做 PVM，但我是先對我前一個 part 做 translate 和 rotate 後再算出該部位的結果，讓在做旋轉時可以整個進行旋轉，這樣會是講義的結構(以 Neck 的 mvp 為例，會等同於 projection * view * mBody * mNeck)。

功能:

Walk: On 時可利用鍵盤 W S 做前後位移，Off 時會自動回螢幕中央。

Dance: 當 Walk Off 時才會觸發，會進行一個跳舞動畫的展示

(芭蕾舞: 包含整個機器人的旋轉)。