Week 6:

❖ Mouse Callbacks

Chakrit Watcharopas

Mouse Callbacks

3 Mouse Callbacks

- Whenever mouse buttons click
  - *glutMouseFunc()* มี 2 event เกิดขึ้น ในการกดคลิ้งหนึ่ง

- Whenever a mouse cursor moves
  - *glutMotionFunc()* กดค้างไว้ลาก จะเกิด event แต่ถ้ากดอย่างเดียว ไม่เกิด
  - *glutPassiveMotionFunc()* เมาส์เคลื่อนที่ แบบไม่ต้องกด

glutMouseFunc(mouseCB)

□ mouseCB(button, state, x, y) *ปุ่มกด*

900 xrou
หมุบป่วยบนหน้าต่งมีพิกด 0,0
มุมขวาใต 799, 799

□ First passing parameter, *button,* returns
   - *which button is clicked or released, e.g.,*
   - GLUT_LEFT_BUTTON
   - GLUT_MIDDLE_BUTTON
   - GLUT_RIGHT_BUTTON

□ Second passing parameter, *state,* returns
   - *whether the button is clicked or released*
   - GLUT_DOWN (clicked) *เมาส์ถูกกด*
   - GLUT_UP (released) *เมาส์ถูกปล่อย* *พิกัดบนหน้าต่างตอนถูกกด*

□ *(x, y)* is a mouse location when button is triggered

□ *(x, y) is in window space; (0, 0) is at top-left* *พิกัด บนหน้าต่าง*

Example: glutMouseFunc

```python
def mouseCB(button, state, x, y):
    if button == GLUT_LEFT_BUTTON:
        print("Left mouse button", end="")
    elif button == GLUT_RIGHT_BUTTON:
        print("Right mouse button", end="")
    elif button == GLUT_MIDDLE_BUTTON:
        print("Middle mouse button", end="")
    if state == GLUT_DOWN:
        print(" is clicked", end="")
    elif state == GLUT_UP:
        print(" is released", end="")
    print(" at (%d, %d)" % (x, y))
```

ເມລ໌ຖູກດເຮະ ລືກຳນວາກ

- motionCB(x, y)
- After a button is clicked, whenever the mouse cursor is moved, the cursor location (x, y) is passed to the callback function

Example: glutMotionFunc

```python
def motionCB(x, y):
    print("Mouse is at position (%d, %d)" % (x, y))

def main():
    glutInit(sys.argv)
    glutInitDisplayMode(GLUT_RGBA | GLUT_DOUBLE)
    glutInitWindowSize(512, 512)
    glutCreateWindow("Mouse Motion Callback")
    glutDisplayFunc(display)
    glutKeyboardFunc(keyboard)
    glutMotionFunc(motionCB)
    glutMainLoop()
```

เมาส์เคลื่อนที่ แบบไม่กด

- passiveCB(x, y)
- When a mouse cursor is inside the window without any button being clicked, the location of the cursor (x, y) is passed to the callback function

Example: glutPassiveMotionFunc

```python
def passiveCB(x, y):
    print("Mouse is at position (%d, %d)." % (x, y))

def main():
    glutInit(sys.argv)
    glutInitDisplayMode(GLUT_RGBA | GLUT_DOUBLE)
    glutInitWindowSize(512, 512)
    glutCreateWindow("Passive Motion Callback")
    glutDisplayFunc(display)
    glutKeyboardFunc(keyboard)
    glutPassiveMotionFunc(passiveCB)
    glutMainLoop()
```

References

Kilgard, M. *GLUT Documentation.* http://www.opengl.org/documentation/specs/glut/spec3/node50.html, accessed Oct 14, 2011.