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# ----- Nombre: Cristian Beltran Concha ---------
# ----- Prof: Luis Caro Saldivia ----------------
# ----- Asignatura: Programacion 2 ----------
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# ----- Descripcion: Recive la direccion a mover 7 robots
# ---------------------------------------------
import serial
import pygame
from pygame.locals import *

import random as RA

#--------------------------------------------------------------------
# Carga imagenes y convierte formato pygame
#--------------------------------------------------------------------
def Load_Image(sFile,transp=False):
    try: image = pygame.image.load(sFile)
    except pygame.error,message:
           raise SystemExit,message
    image = image.convert()
    if transp:
       color = image.get_at((0,0))
       image.set_colorkey(color,RLEACCEL)
    return image


#--------------------------------------------------------------------
# Clase de Robot
#--------------------------------------------------------------------
class Robot():
    def __init__(self, x, y, vel):
        self.x = x
        self.y = y
        self.vel = vel
    def display(self):
        wm.blit(Load_Image("robot.png", True), (self.x, self.y))
    def move(self, dir):    # mueve el robot segun la direccion
        #print dir
        if dir == "N":
            self.y -= self.vel
        elif dir == "S":
            self.y += self.vel
        elif dir == "E":
            self.x += self.vel
        elif dir == "O":
            self.x -= self.vel
    def margin(self):       # comprueba que no salga de la pantalla
        if self.x > width - sizeRobots:
            self.x = width - sizeRobots
        elif self.x < 0:
            self.x = 0
        if self.y > height - sizeRobots:
            self.y = height - sizeRobots
        elif self.y < 0:
            self.y = 0




s = serial.Serial(0)    #COM1
s.baurate = 2400

pygame.init()
(width, height)  = (640, 480)   # dimenciones de la ventana

wm = pygame.display.set_mode((width, height))
pygame.display.set_caption('Robots')
clock = pygame.time.Clock()

robots = []
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72   nRobosts = 7        # numero de Robots a dibujar
73   sizeRobots = 32     # tamanio de la imagen robot
74
75   # instancia los robots
76   for i in range(nRobosts):
77       x = RA.randint(sizeRobots, width - sizeRobots)
78       y = RA.randint(sizeRobots, height - sizeRobots)
79       r = Robot(x, y, 2)
80       robots.append(r)
81
82   lok = True
83
84   while lok:
85
86       for event in pygame.event.get():
87           if event.type == pygame.QUIT:
88               lok = False
89       wm.fill((100,100,50))   # pinta el fondo
90
91       i = 1
92       for r in robots:
93           s.write(str(i)+"\n")    #envia el identificador del script Slave
94           comm = s.readline()
95           r.move(comm[:-1])   # mueve segun el comando recivido
96           r.margin()
97           r.display()
98           print "move r"+str(i)
99           i+=1
100
101      pygame.display.flip()   #actualiza la pantalla
102      clock.tick(100)
103  s.close()
104  pygame.quit()
```