

## Orbit

Earth is being besieged by asteroids. Fortunately, due to advances in mad science we have the ultimate defensive shield: we can now move the moon at will in its orbit! Angle the moon around the earth to stop the asteroids before they crash into the earth.

Orbit is by Jacob Charles, AKA Rio Kikaru, Revised from his entry for MinorHack on October 28th.

/\* orbit.c listing begins: \*/

```
#include <allegro.h>
#include <math.h>
#include <stdio.h>
```

```
#define ALLEGRO_NO_FIX_CLASS
#define MODE GFX_AUTODETECT_WINDOWED
#define WIDTH 640
#define HEIGHT 480
#define BLACK makecol(0, 0, 0)
#define BLUE makecol(0, 128, 255)
#define ORANGE makecol(255, 192, 0)
#define WHITE makecol(255, 255, 255)
#define DIST 0
#define ANGLE 1
#define BOOM 2
```

```
BITMAP *buffer;
long start_time;
int loop_num;
int block [5][3];
int p_angle = 270, score = 0;
bool gameover, active[5];
```

```
void spawn_meteor() {
    for(int i = 0; i < 5; i++) {
        if (active[i] == false) {
            block[i][DIST] = (rand()%100)+200;
            block[i][ANGLE] = (rand()%300)+30;
            active[i] = true;
            return;
        }
    }
    return;
}
```

```
void main() {
    allegro_init();
    install_keyboard();
    install_mouse();
    install_timer();
    set_color_depth(32);
    set_gfx_mode(MODE, WIDTH, HEIGHT, 0, 0);
    srand(time(NULL));
```

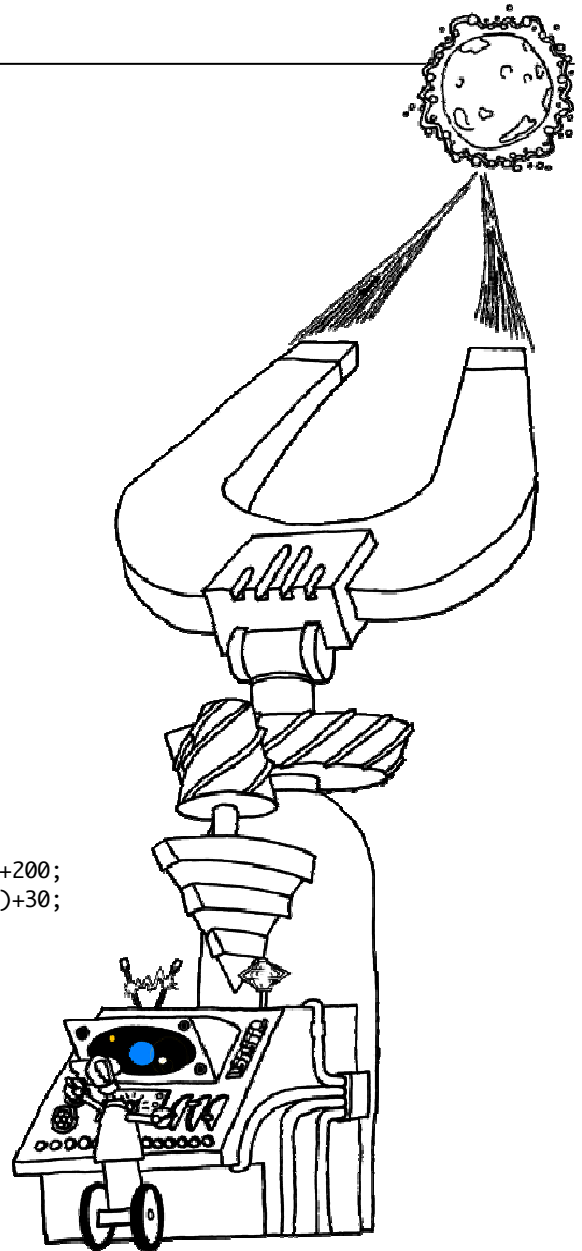
```
    buffer = create_bitmap(WIDTH, HEIGHT);
```

```
    textout_centre_ex(screen, font, "Welcome to Orbit!", 320, 200, WHITE, -1);
    textout_centre_ex(screen, font
        , "Rotate the Moon around the earth to block the oncoming meteors"
        , 320, 220, WHITE, -1);
    textout_centre_ex(screen, font, "Press Enter to start game"
        , 320, 240, WHITE, -1);
    while ((!key[KEY_ENTER])&&(!key[KEY_ESC])) {}
```

```
    while (!key[KEY_ESC]) {
        start_time = clock();
```

```
        /*game goes here*/
```

```
        if ((key[KEY_LEFT])||key[KEY_DOWN]))
            p_angle -= 10;
        if ((key[KEY_RIGHT])||key[KEY_UP]))
```



/\* Listing continued on next page...\*/

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```

    p_angle += 10;

    p_angle += 360;
    p_angle %= 360;

    if (loop_num % (45-score/20) == 0)
        spawn_meteor();

    for(int i = 0; i < 5; i++) {
        if (active[i])
            block[i][DIST] -= 2;
        if (block[i][BOOM] > 0)
            block[i][BOOM] += 1;
        block[i][BOOM] %= 10;
        if ((block[i][DIST] < 40)&&(active[i] == true))
            gameover = true;
        if ((block[i][DIST] < 90)&&(block[i][DIST] > 40)
            &&(block[i][ANGLE] > p_angle - 25)&&(block[i][ANGLE] < p_angle + 25)
            &&(active[i] == true)) {
            active[i] = false;
            score += 1;
            block[i][BOOM] = 1;
        }
    }

    /*drawing goes here*/
    circlefill(buffer, 320, 240, 40, BLUE);
    circlefill(buffer, 320+int(70*cos(p_angle/57.32)), 240
        +int(70*sin(p_angle/57.32)), 12, WHITE);
    for (int i = 0; i < 5; i++) {
        if (active[i] == true)
            circlefill(buffer, 320+int(block[i][DIST]*cos(block[i][ANGLE]/57.32))
                , 240+int(block[i][DIST]*sin(block[i][ANGLE]/57.32)), 7, ORANGE);
        if ((block[i][BOOM] > 1)&&(active[i] == false))
            circle(buffer, 320+int(block[i][DIST]*cos(block[i][ANGLE]/57.32))
                , 240+int(block[i][DIST]*sin(block[i][ANGLE]/57.32)), block[i][BOOM]*10
                , ORANGE);
    }
    textprintf_ex(buffer, font, 30, 20, WHITE, -1, "Score: %i", score);
    blit(buffer, screen, 0, 0, 0, 0, WIDTH, HEIGHT);
    clear_to_color(buffer, BLACK);

    if (gameover == true) {
        textout_centre_ex(screen, font, "Game Over", 320, 240, WHITE, -1);
        textout_centre_ex(screen, font, "Press esc to quit", 320, 260, WHITE, -1);
        while (!key[KEY_ESC]) {}
        destroy_bitmap(buffer);
        return;
    }

    while (clock() < start_time + 20) {}
    loop_num += 1;
}
destroy_bitmap(buffer);
return;
}
END_OF_MAIN()

```

