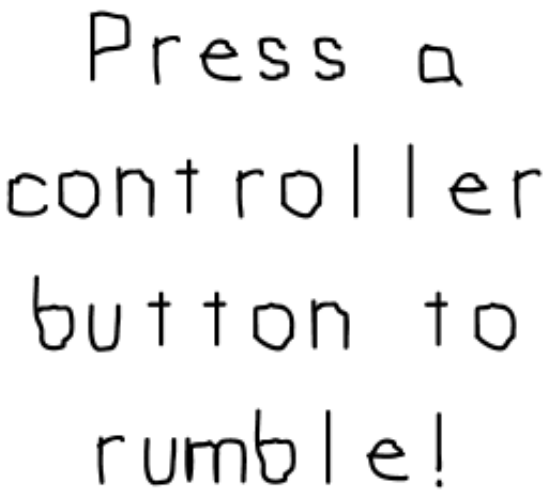
Lazy Foo' Productions

Force Feedback



Last Updated 3/2/14

Now that we know how to how to use joysticks with SDL, we can now use the new haptics API to make the controller shake.

```
//Game Controller 1 handler with force feedback
SDL_Joystick* gGameController = NULL;
SDL_Haptic* gControllerHaptic = NULL;
```

A haptic device is something that gives some sort of physical feedback. In this case, it makes the controller rumble. The datatype for a haptics device is intuitively named SDL_haptic.

```
  //Initialize SDL
  if( SDL_Init( SDL_INIT_VIDEO | SDL_INIT_JOYSTICK | SDL_INIT_HAPTIC ) < 0 )
  {
     printf( "SDL could not initialize! SDL Error: %s\n", SDL_GetError() );
     success = false;
  }
```

Like with the joysticks subsystem, you need to make sure to initialize the haptic specific subsystem in order to use haptics.

```
    //Check for joysticks
    if( SDL_NumJoysticks() < 1 )
    {
        printf( "Warning: No joysticks connected!\n" );
    }
    else
    {
        //Load joystick
        gGameController = SDL_JoystickOpen( 0 );
        if( gGameController == NULL )
        {
            printf( "Warning: Unable to open game controller! SDL Error: %s\n", SDL_GetError() );
        }
        else
        {
            //Get controller haptic device
            gControllerHaptic = SDL_HapticOpenFromJoystick( gGameController );
            if( gControllerHaptic == NULL )
            {
                printf( "Warning: Controller does not support haptics! SDL Error: %s\n", SDL_GetError() );
            }
            else
            {
                //Get initialize rumble
                if( SDL_HapticRumbleInit( gControllerHaptic ) < 0 )
                {
                    printf( "Warning: Unable to initialize rumble! SDL Error: %s\n", SDL_GetError() );
                }
            }
        }
    }
```

After we initialize the joystick, we need to get the haptics device from the joystick using SDL_HapticOpenFromJoystick on an opened joystick. If we manage to get the haptic device from controller we have to initialize the rumble using SDL_HapticRumbleInit.

```
void close()
{
    //Free loaded images
    gSplashTexture.free();

    //Close game controller with haptics
    SDL_HapticClose( gControllerHaptic );
    SDL_JoystickClose( gGameController );
    gGameController = NULL;
    gControllerHaptic = NULL;

    //Destroy window
    SDL_DestroyRenderer( gRenderer );
    SDL_DestroyWindow( gWindow );
    gWindow = NULL;
```

```
    gRenderer = NULL;

    //Quit SDL subsystems
    IMG_Quit();
    SDL_Quit();
}
```

Once we're done with a haptic device, we call SDL_HapticClose.

```
            //Handle events on queue
            while( SDL_PollEvent( &e ) != 0 )
            {
                //User requests quit
                if( e.type == SDL_QUIT )
                {
                    quit = true;
                }
                //Joystick button press
                else if( e.type == SDL_JOYBUTTONDOWN )
                {
                    //Play rumble at 75% strenght for 500 milliseconds
                    if( SDL_HapticRumblePlay( gControllerHaptic, 0.75, 500 ) != 0 )
                    {
                        printf( "Warning: Unable to play rumble! %s\n", SDL_GetError() );
                    }
                }
            }
```

To actually make the controller rumble, you need to make it play some sort of rumbling. The easiest way to make your controller shake is by calling SDL_HapticRumblePlay, which takes in the haptic device, strength in percentage, and duration of the rumble. Here we make the controller rumble at 75% strength for half a second whenever a SDL_JoyButtonEvent happens.

Now the SDL 2 haptics API has many more features not covered here including making custom effects, handling multi rumble devices, and handling haptic mice. You can check them out in the SDL 2 force feedback documentation.

Download the media and source code for this tutorial here.

Back to SDL Tutorials