# Mobile OpenGL game porting to Tizen: hands-on experience

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# World Cup Table Tennis

- Arcade game
- 2-player game modes



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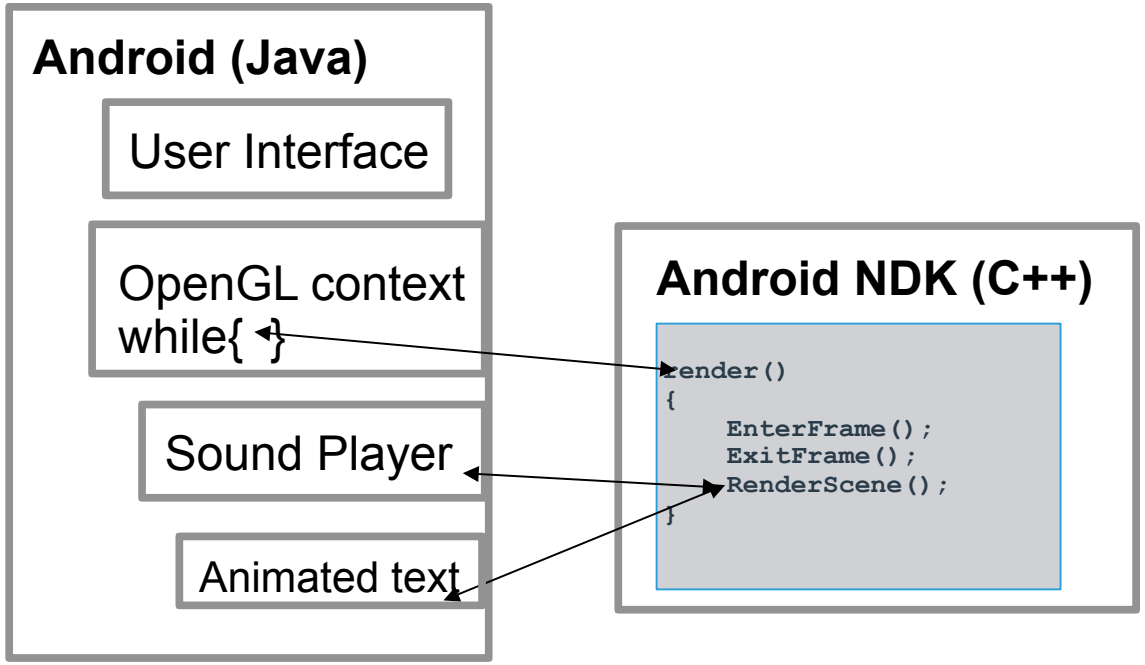
# Android application structure



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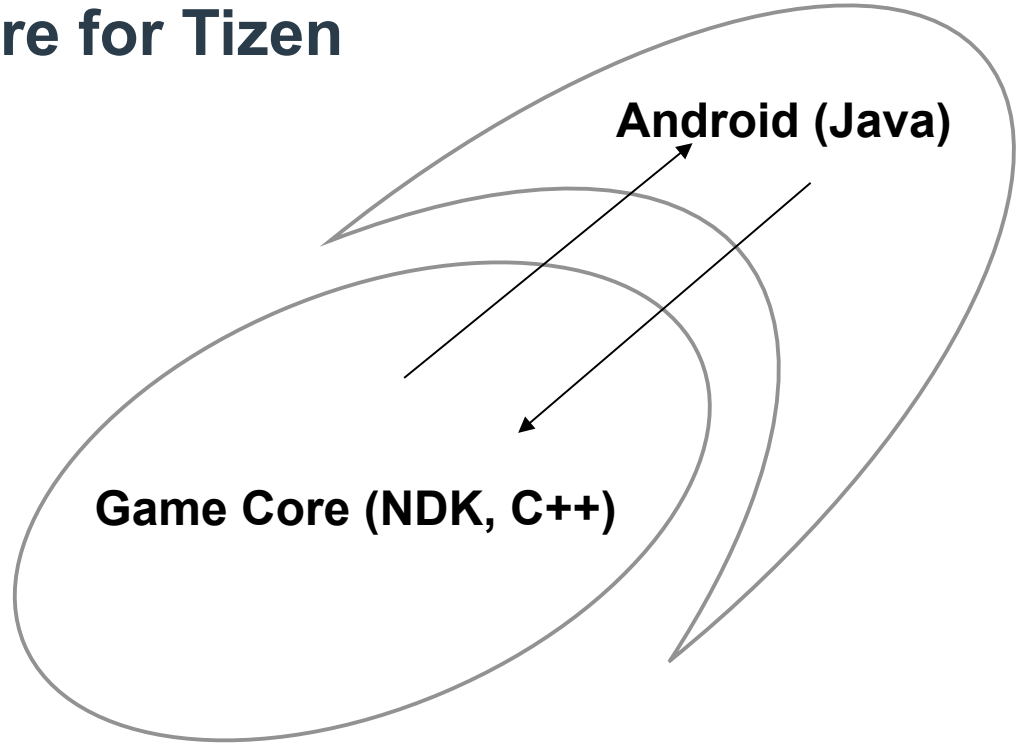
# Building Game Core for Tizen



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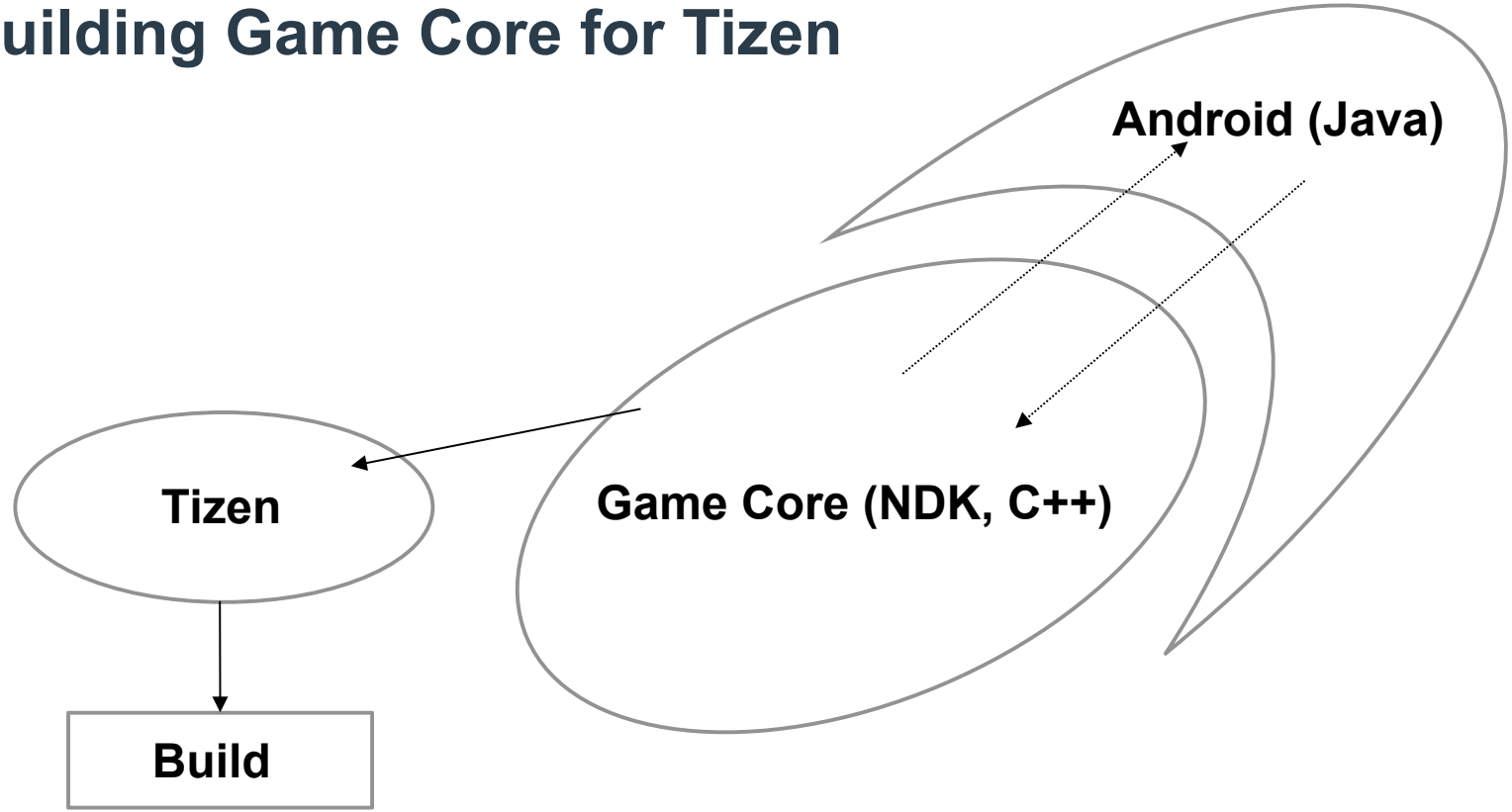
# Building Game Core for Tizen



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# Tizen OpenGL application

**Frame-based**

**Frame**

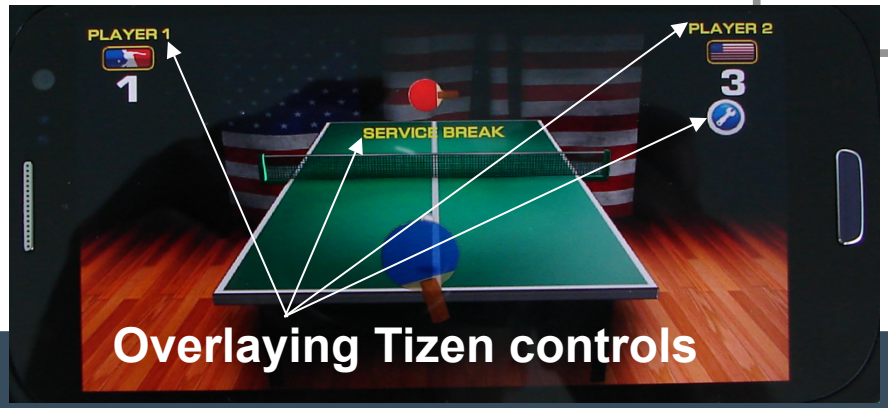
**Form-based**

**Frame**

**Form 1**
Splash Screen

**Form 2**
UI menus

**Form 3**
OpenGL context
Overlaying controls



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# OpenGL texture loading (Android)

## Android (Java)

```
for(int id = 0; id < num_of_textures; id++)
{
    inittexture(id);
}
```

```
initWithImage(id)
{
    Bitmap *bmp = GetBitmapN(id);
    handleBitmap(bmp);
    glTexImage2D(..., bmp);
    delete bmp;
}
```

## Android NDK (C++)

```
inittexture(id);
{
    glGenTextures(1, name);
    glBindTexture(..., *name);
    initWithImage(id);
}
```



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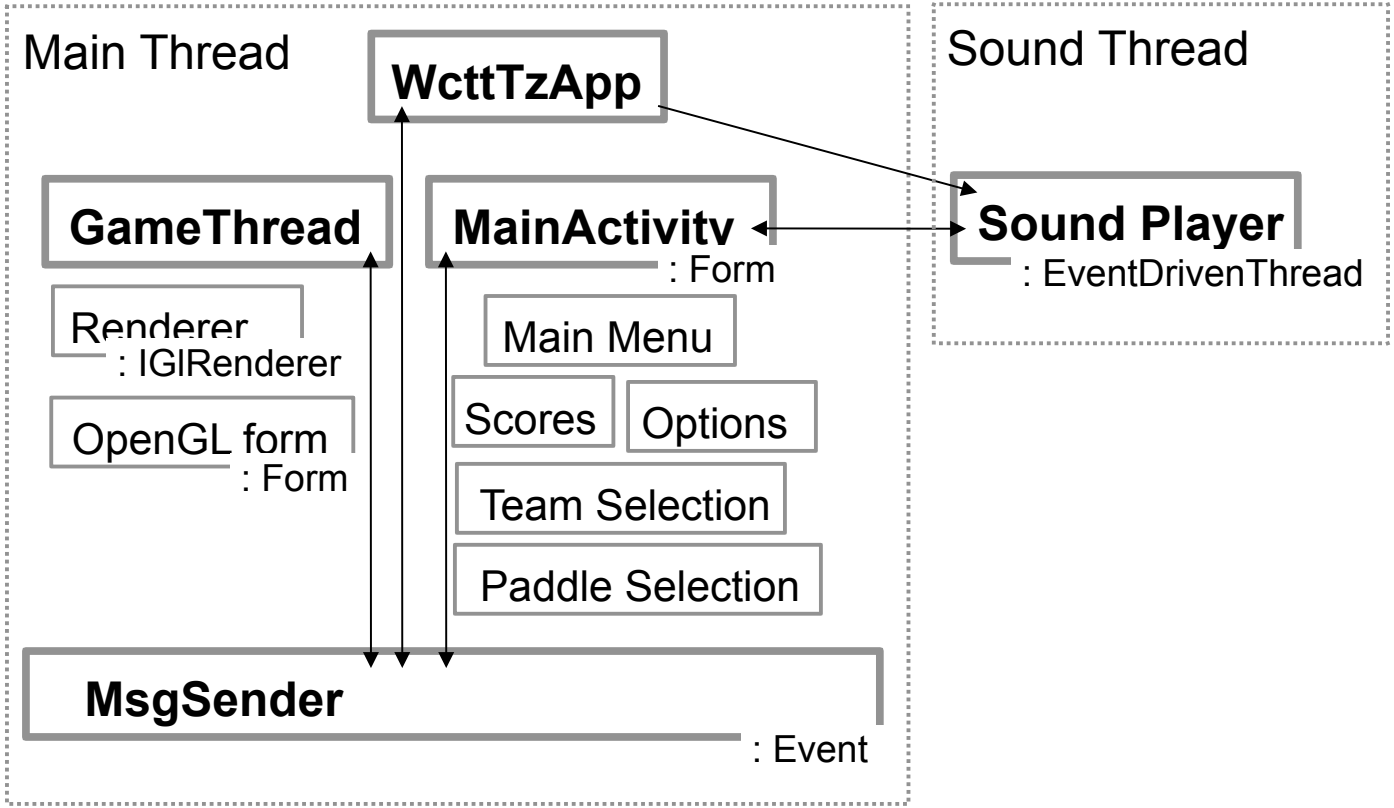
# Tizen application structure



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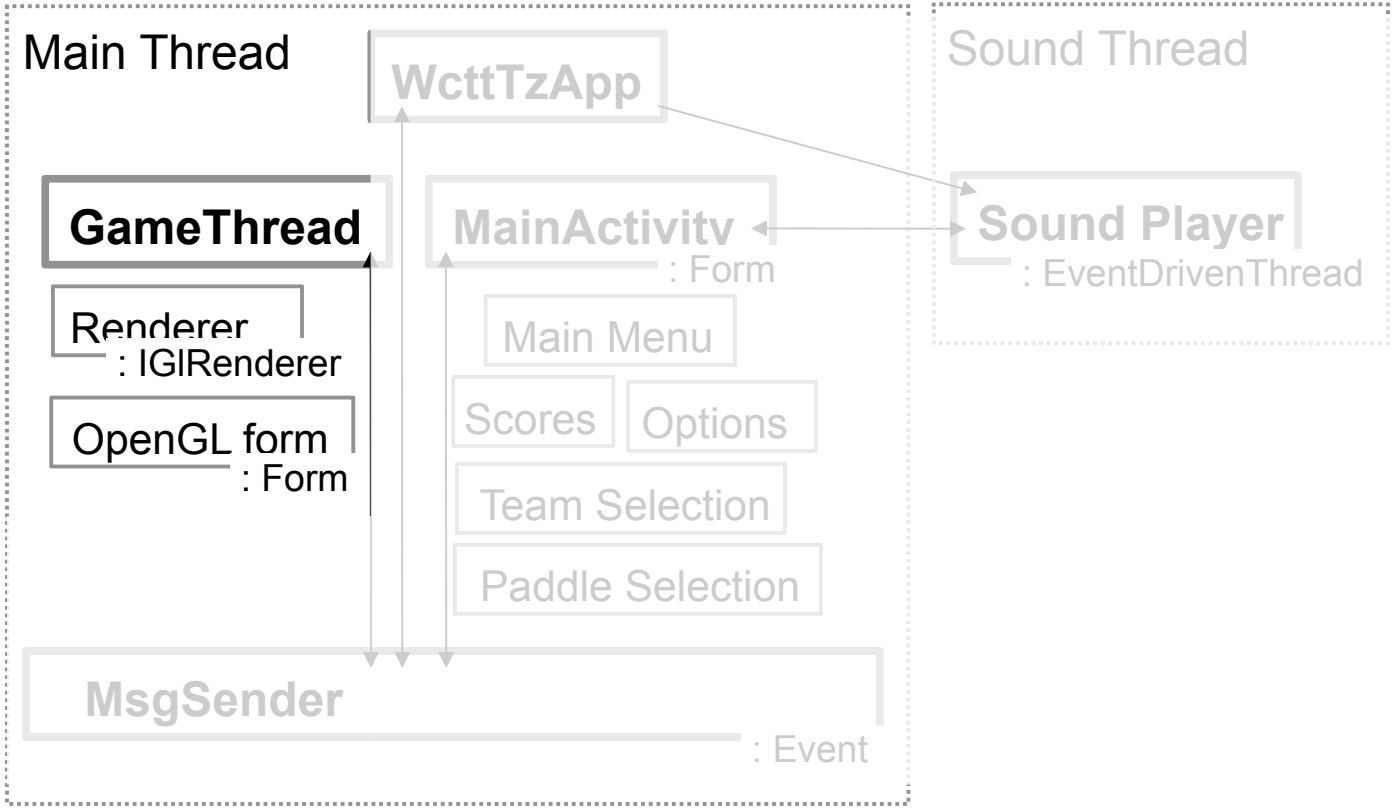
# Tizen application structure: GameThread class



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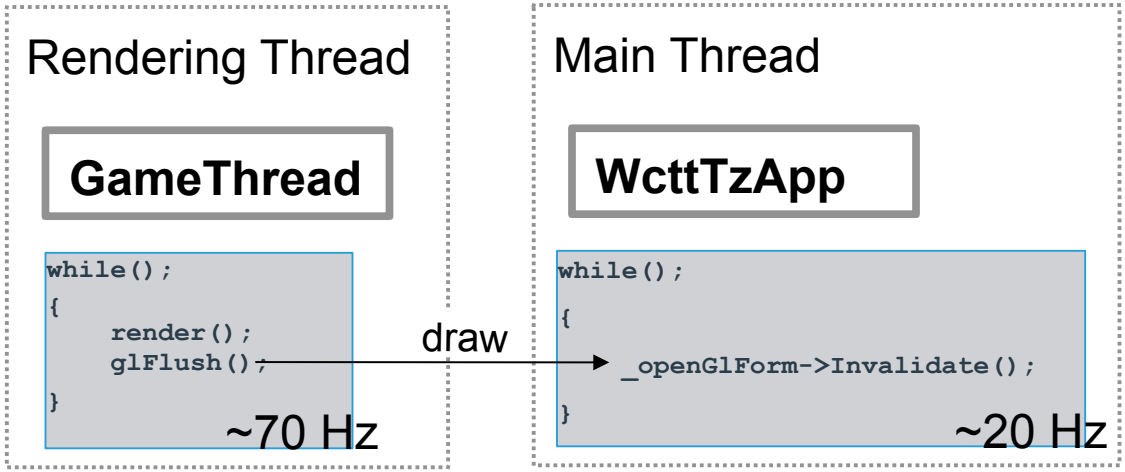
# Separate game thread (workaround for an early F/W ver.)

- Allowed FPS rate increase
- Caused synchronization problem



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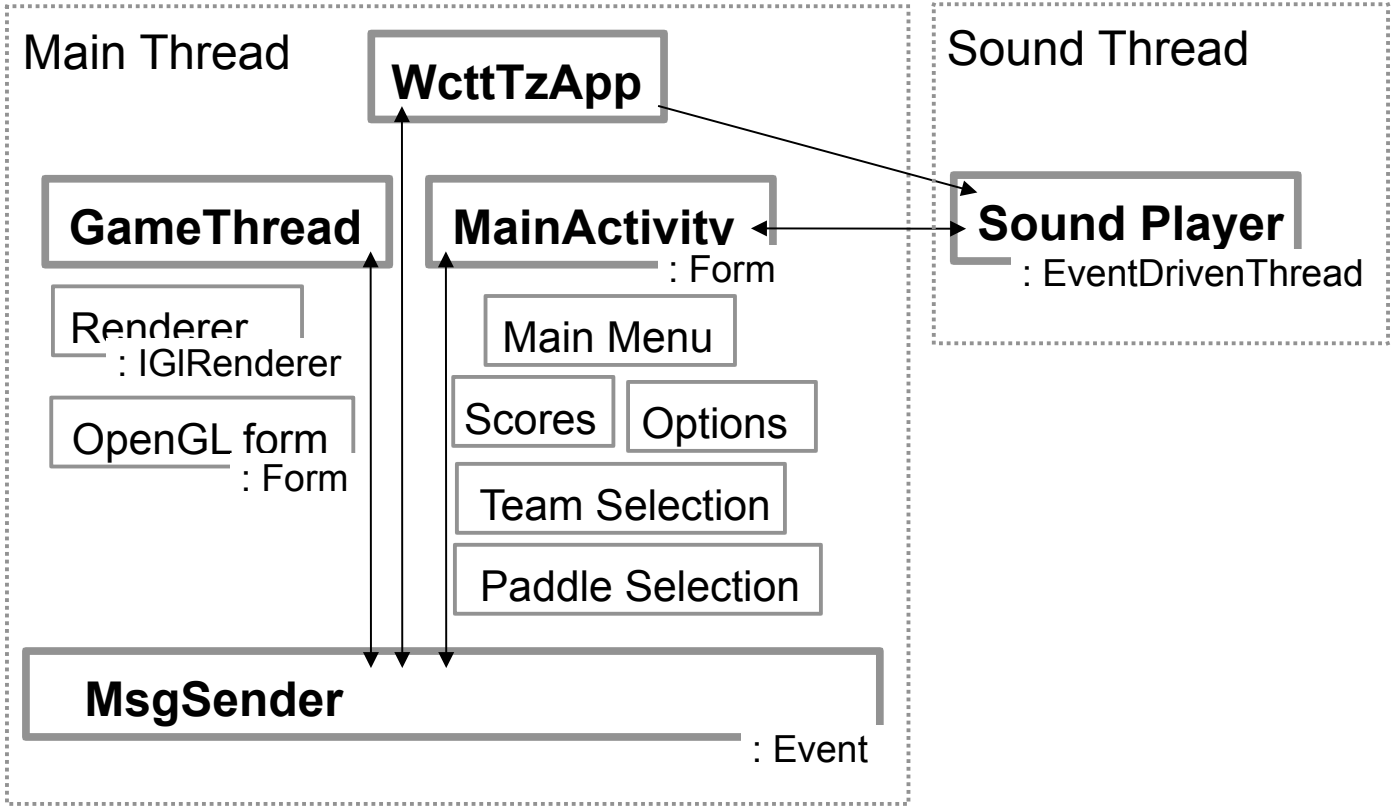
# Tizen application structure



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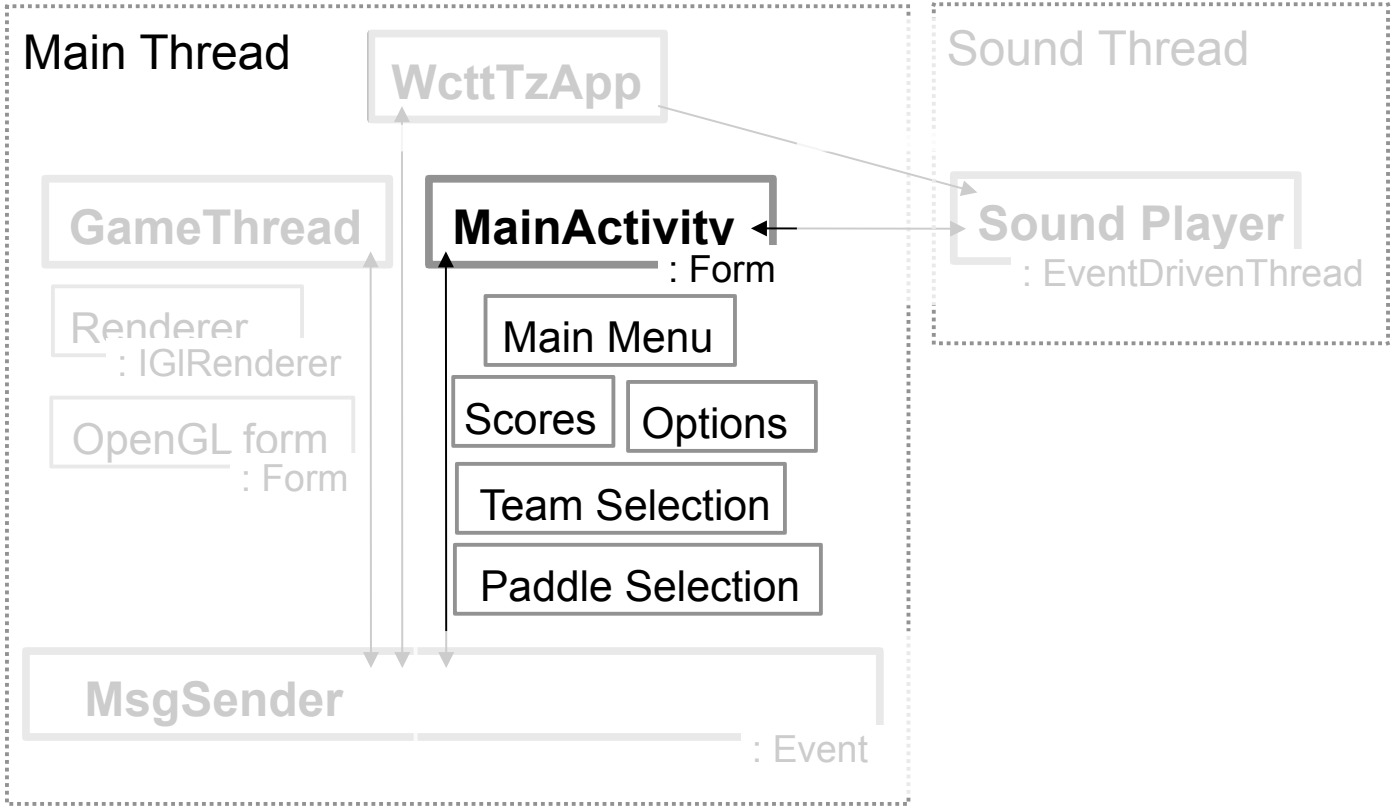
# Tizen application structure: MainActivity class



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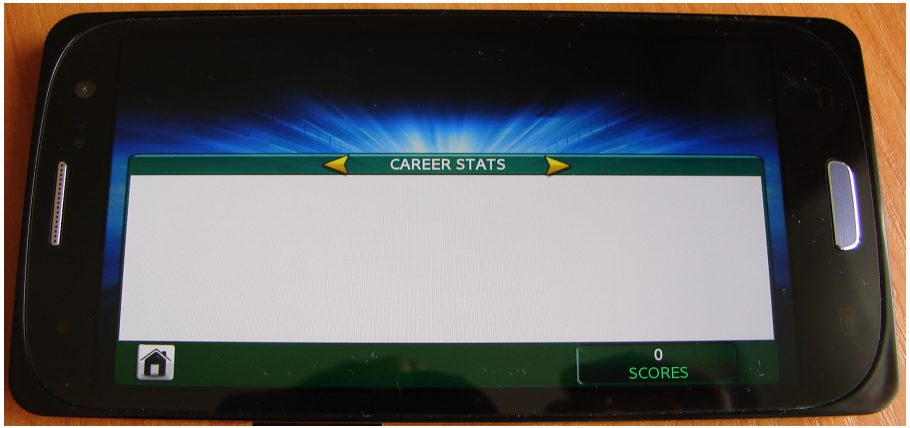
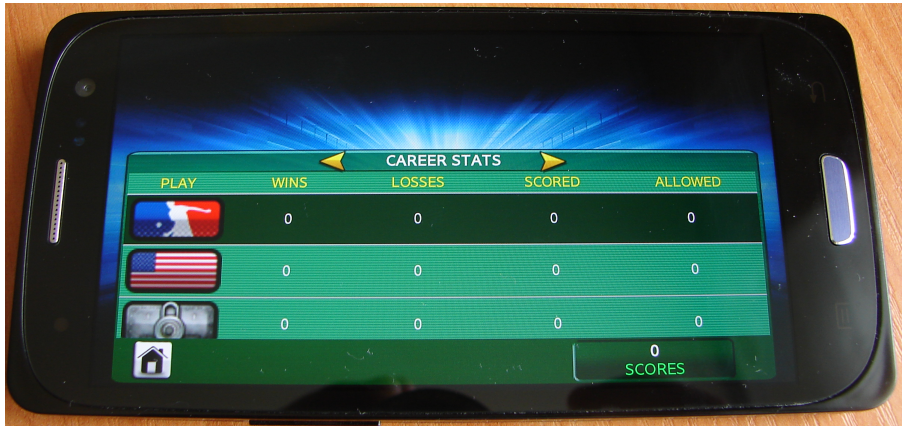
# Issue of a blank WebView

## AddControl(web_view)




## In 1-2 seconds...



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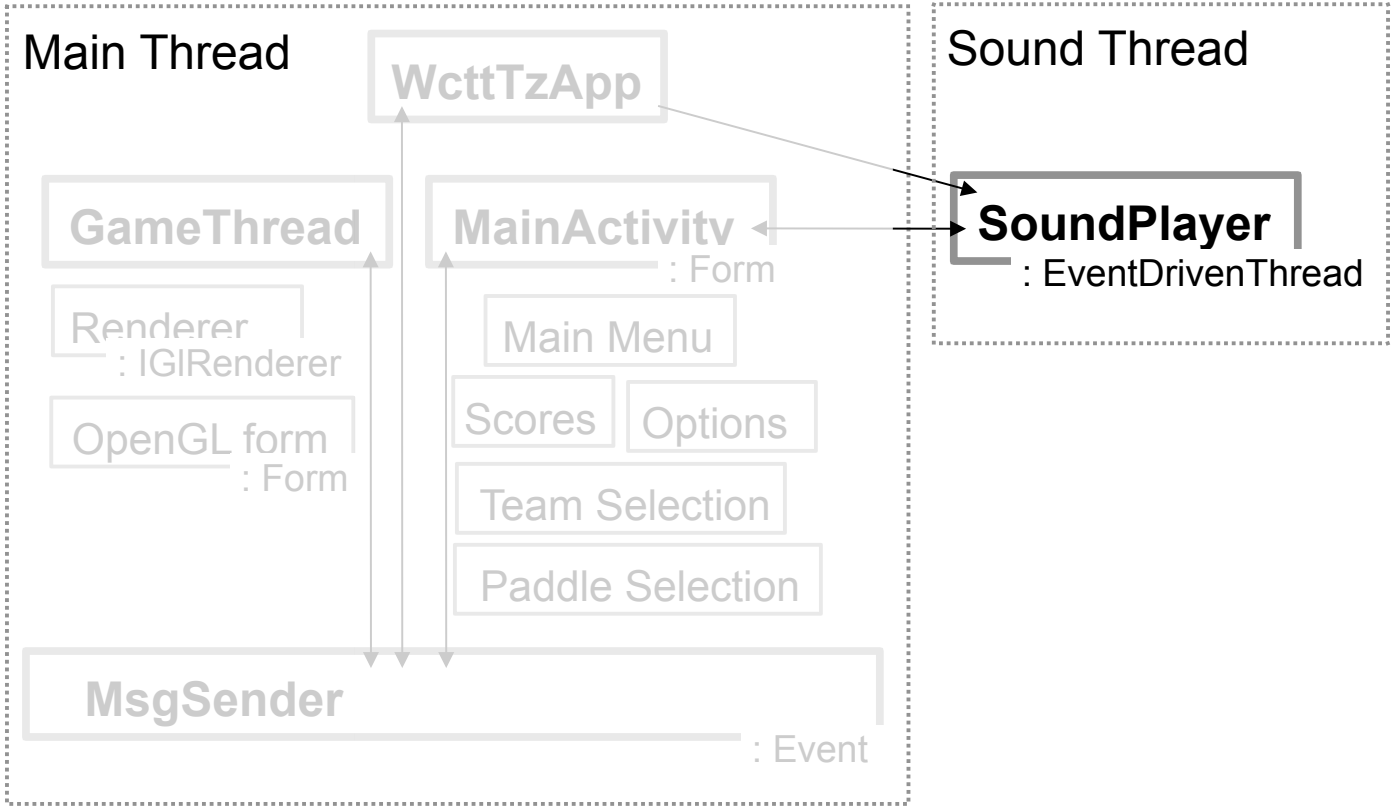
# Tizen application structure: SoundPlayer class



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# Sound Player use options

- Playing mp3 and other compressed formats
- Playing a number of sounds simultaneosly

```
Tizen::Media::Player player;

// Maximal delay
player.OpenFile(path);
player.Play();

// Lower delay
player.OpenBuffer(buffer);
player.Play();
```

```
Tizen::Media::Player player[64];
for(int i = 0; i < 63; i++)
{
   player[i].OpenBuffer(buffer[i]);
}
// Minimal delay.
// Playing simultaneously
player[2].Play();
player[0].Play();
player[1].Play();
player[3].Play();
```


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# Playing sound

- **If one needs to play a sound “sound_id”**

- Low number of players

1 If player is free:

```
player.OpenBuffer(buffer[sound_id]);
player.Play();
```

Exit.

2 Otherwise, choose another player.

Go to step 1.

- High number of players

1 Open buffers in advance:

```
player[0].OpenBuffer(buffer[sound_0]);
...
player[N].OpenBuffer(buffer[sound_N]);
```

2 Play sound in prepared player:

```
player[sound_id].Play();
```



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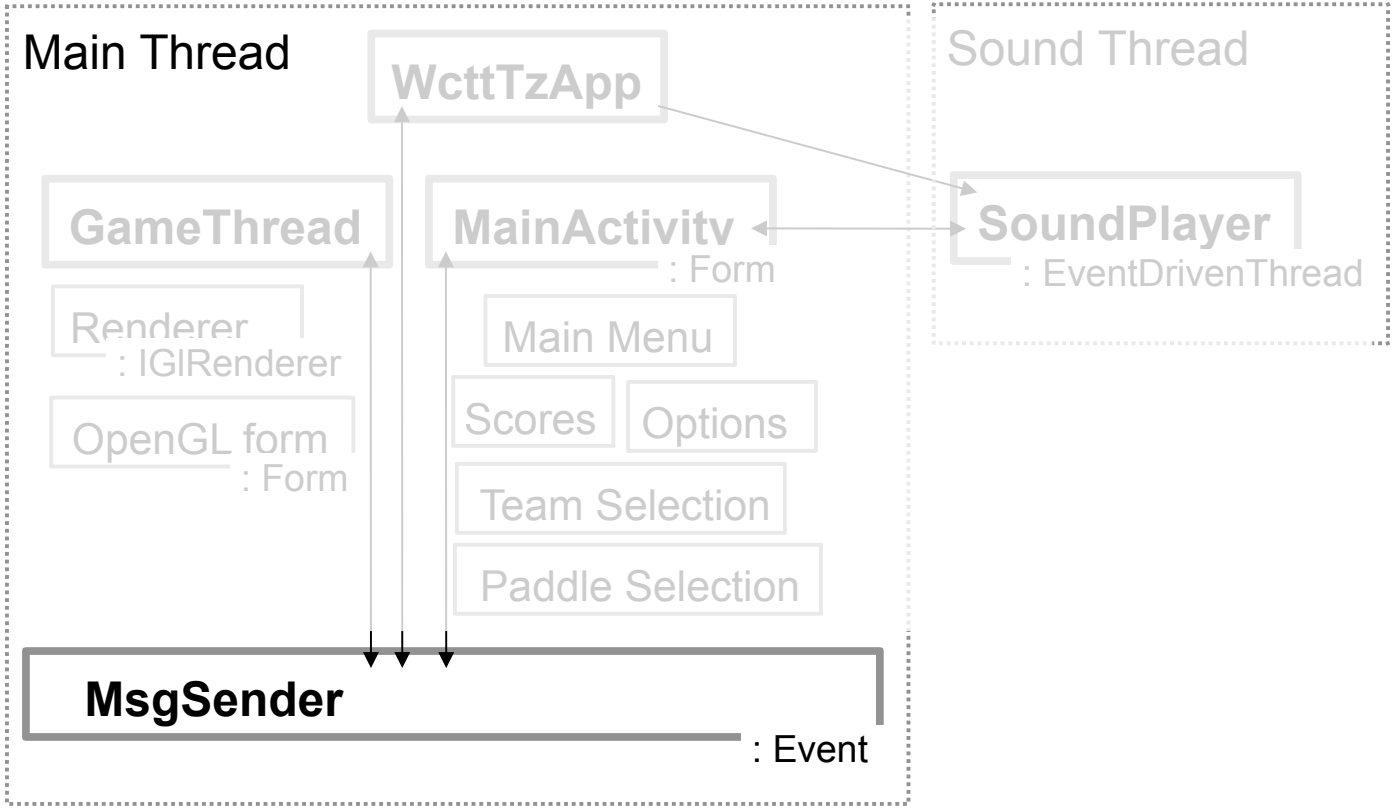
# Tizen application structure: MsgSender class



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# Summary

- Relatively simple porting of C++ OpenGL code to Tizen
- Rich Tizen::Ui namespace for implementation of complex animated user interfaces
- Developer friendly Tizen::Media::Player class for mixed sounds playing


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# Q & A

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