

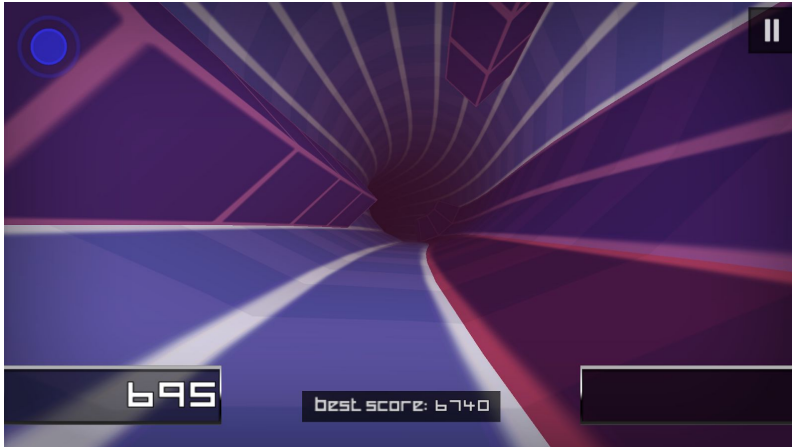
Speed X3D FPGA

Group 5:

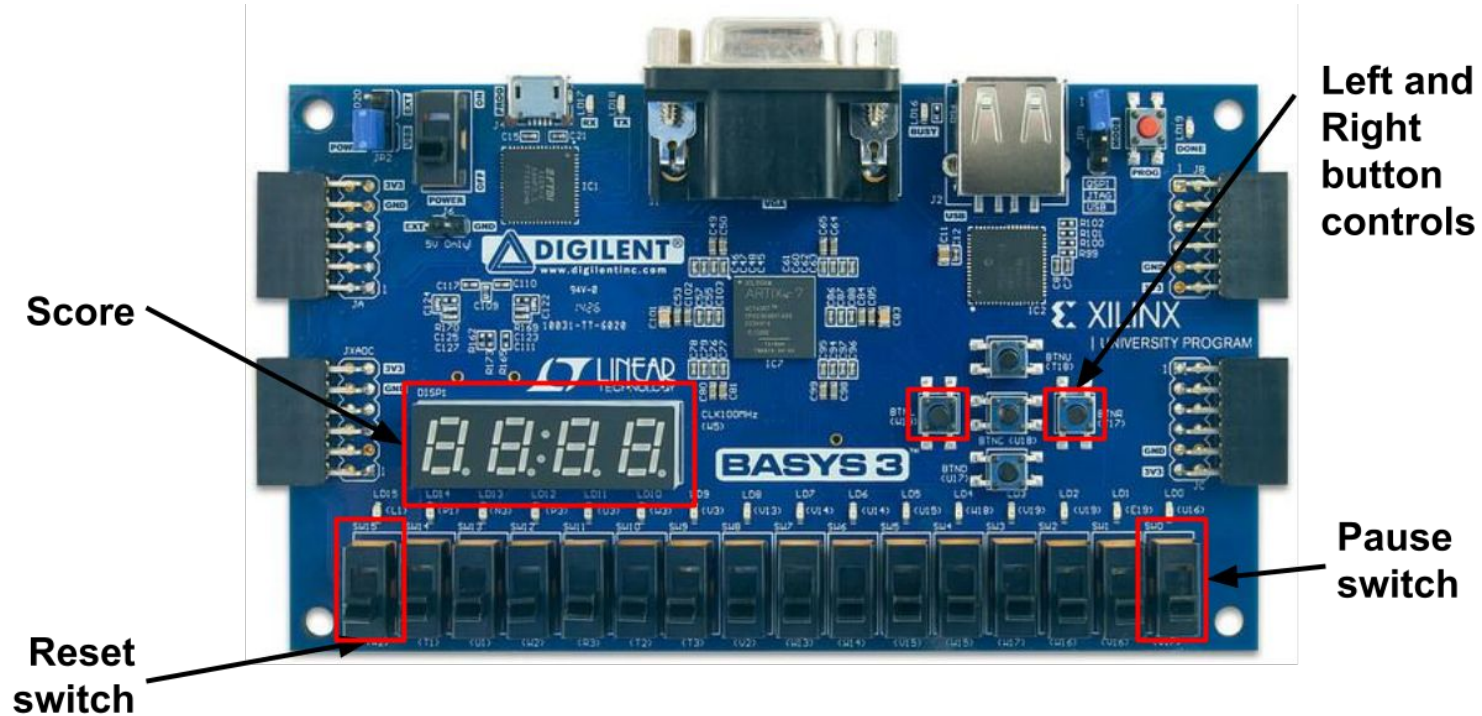
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SpeedX 3D

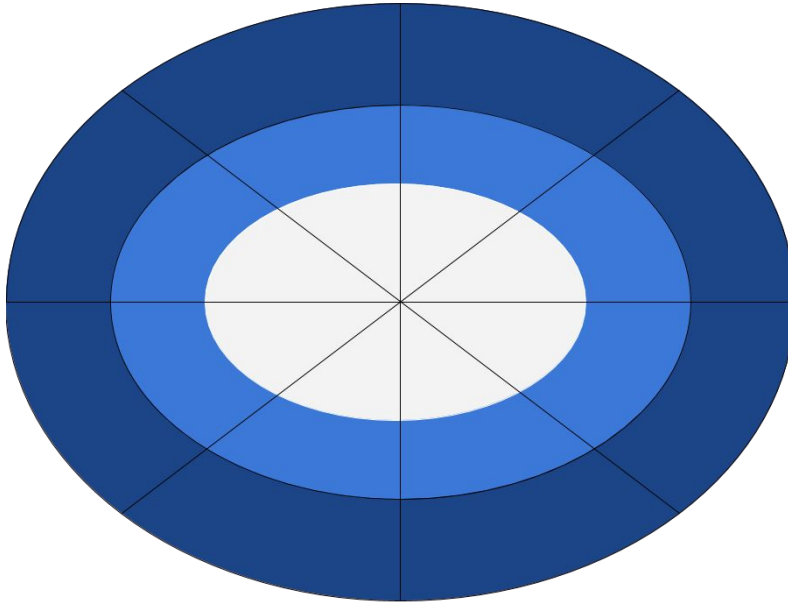
- SpeedX 3D is an app available on both Android and iOS devices
- The first mode is the inside of a tube; second is flat, third is the outside of the tube



FPGA BASYS-3



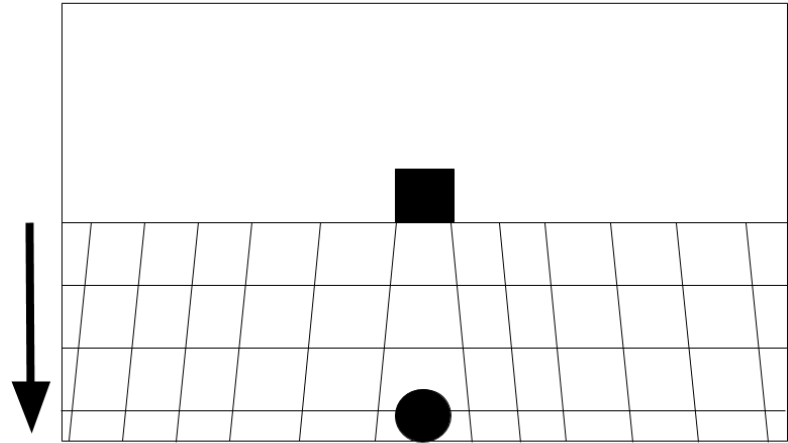
Layout 1



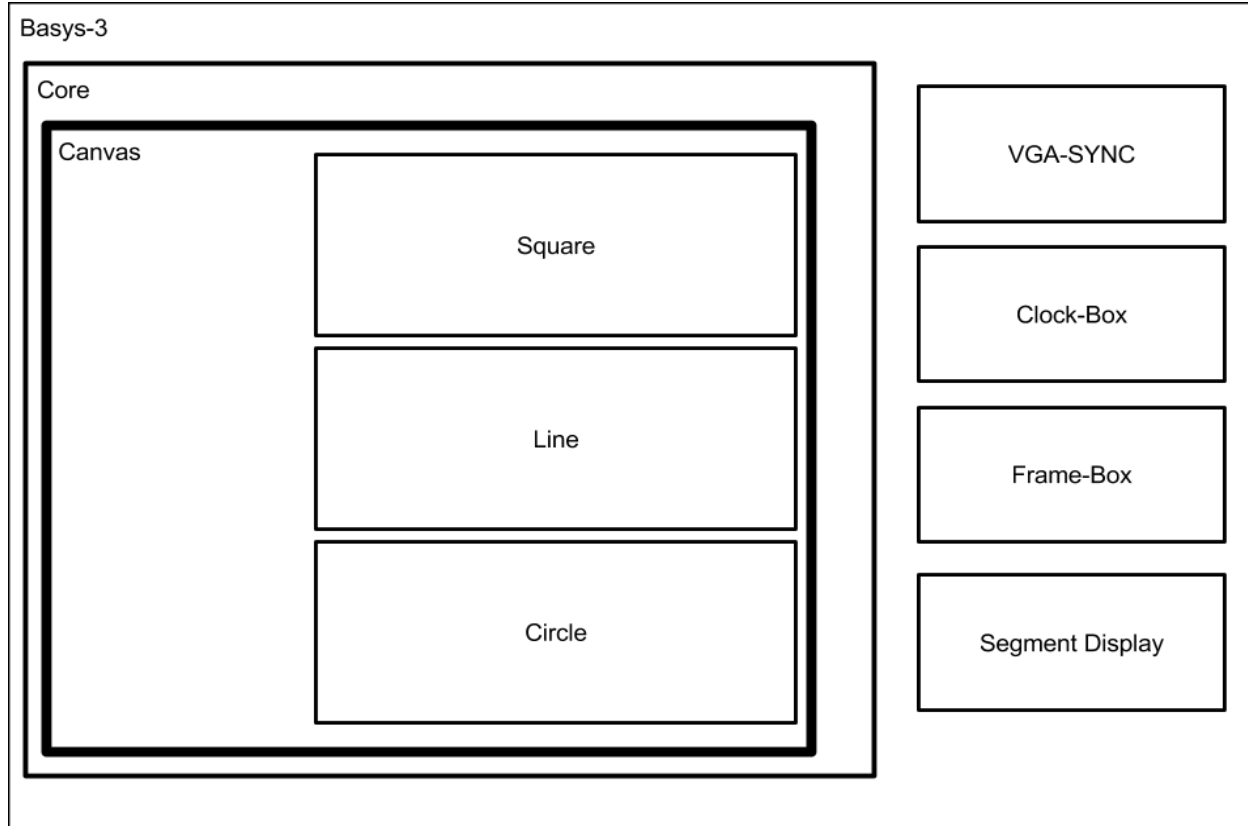
- Concentric Lines
- Polar Directional Lines

Layout 2

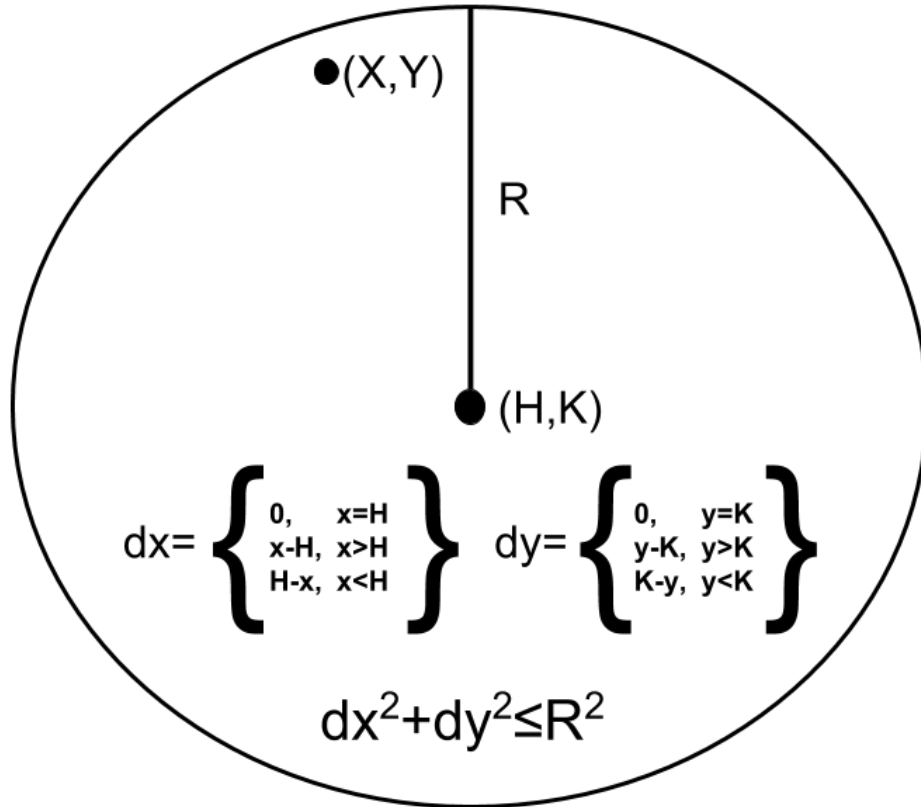
- “Bird’s Eye View”
- Half Display
- 1 Point Perspective
- Monsters Size



Implementation



La Luna y El Sol



- The sun and moon are circles.

Sky Background Update

```
-- Update Sky
process(rst, clk_60f)
begin
  if rst = '0' then
    sky_addr <= (others => '0');
  elsif rising_edge(clk_60f) then
    if sky_addr = x"3e" then
      sky_addr <= (others => '0');
    else
      sky_addr <= sky_addr + '1';
    end if;
  end if;
end process;
```

- Utilize VHDL Process
- 60 Frame Signal
- ROM Component
- Address Iterations

monster GROW BIG

...

```
countMS <= countMS + '1';
```

```
if countMS >= limitMS then
```

```
    countMS <= (others => '0');
```

```
    monster1S <= monster1S + '1';
```

```
    monster2S <= monster2S + '1';
```

```
end if;
```

...

- +1 magic
- Checks if the current monster size count (countMS) has reached the limit (limitMS)
- countMS is an offset of the monster size
- Increment the size of monster every 'n' frames
 - Ex. n = 10
- Helped to avoid an issue of overgrowth of the monster



Questions?

Perhaps Answers