Tell Your Graphics Stack That The Display Is Circular

1. Is your smartwatch wasting resources?

-produced: Rectangular Area

displayed: Circular Area

invisible area: WASTED!

2. How many are wasted?

- App UI
  - Intermediate Representation
  - OpenGL Commands
  - Texture Upload
  - Texture Reading
  - Pixel Operation
  - Frame transfer
  - Controller
  - Panel

-wasted resources

- Wasted Memory Traffic: 225 KB per app bkgnd
- Wasted Memory Traffic: 10 MBps
- Display Interface Traffic: 5 MBps

-total wasted power: ~9mW

3. Pilot solution

- Rewriting OpenGL commands on-the-fly
- Evaluated on Nexus 5 + QCOM's GPU profiler

-measured GPU resource consumption (lower is better)

4. Future thoughts

- Redesign the graphics stack?
- Redesign the hardware?

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