UNIVERSITY OF WATERLOO

TECHNOLOGY SUMMARY

Low-power Display Circuit Architecture and Signal Processing Methods

Background

The displays in modern electronics, especially in handheld or portable devices, consume a large fraction (e.g., 25-30%) of overall energy and negatively affect the battery life. There is a constant motivation to make hand held devices energy efficient and increase the time before the device needs to be charged.

Description of the invention

The invention includes a novel digital data driving method and its corresponding pixel circuit architecture, an innovative signal processing method, and an energy recycling method to reduce active power and energy consumption without compromising the display brightness. The proposed invention is to reduce the power and energy consumption of all electronic, displays, particularly for applications where limited energy is stored on a small battery.

Advantages

Lower energy consumption resulting in longer use in-between charges.

Potential applications

- Cellphones, Smartphones,
- Smartwatches,
- Tablets and laptops,
- AR\VR
- Wearables
- Other handheld or portable devices with a display screen.

Reference

UW# 10189, UW# 10194

Patent status

PCT/CA2022/050364

Stage of development

Prototype
Ongoing research

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