C|D|T Cambridge Display Technology

Barrier | Energy harvesting | Optical photodetectors | **Pulse oximetry** | Lighting | Batteries | Flex OLED | OPV | Biosensors | Development partner

# CDT technology in pulse oximeter technology

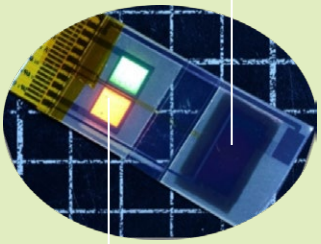
- Non-invasive method for monitoring heart rate and oxygen saturation
- Measure absorbance/reflectance change due to blood oxygenation at each of the wavelengths
- Heart rate and blood oxygenation level are calculated

## CDT technology enables new form factors

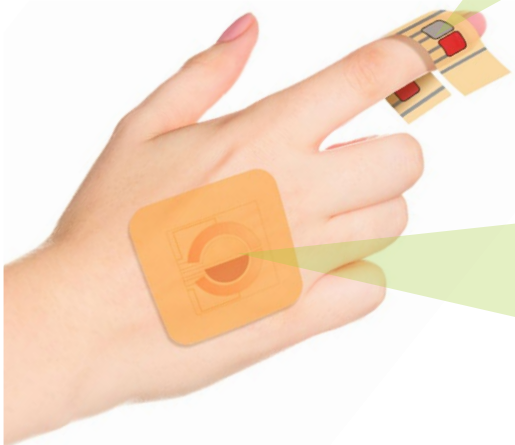
- Two printed OLEDs with different wavelengths and a printed OPD integrated on a single substrate
- We have developed a technology that is thin, flat and no protrusions into the body when worn
- Opens up opportunity to create patches that can be used in other areas of the body

Transmission
Reflection

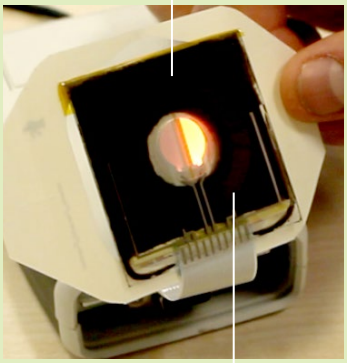
### Transmission mode



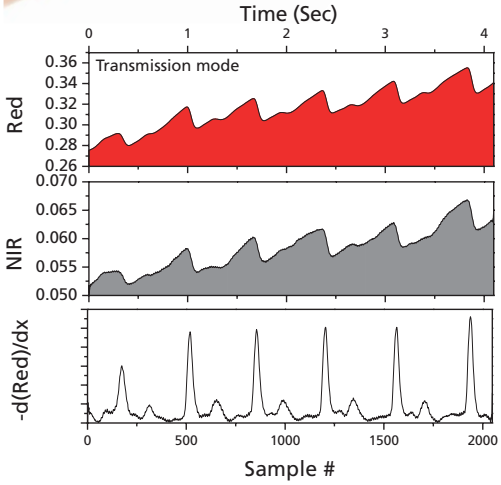

Bent around finger

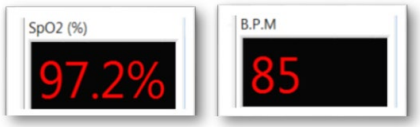


### Reflection mode




Patch on hand



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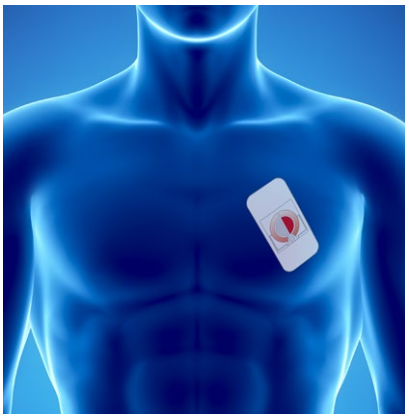
# CDT technology in pulse oximeter technology

## Pulse oximetry usage cases

### Fitness

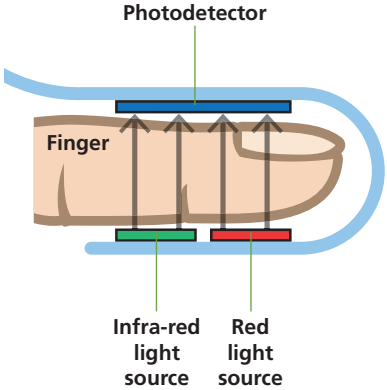
**Non clinical wearable for personal fitness**

### Remote health



**Clinical monitoring in home settings**

### Inpatient

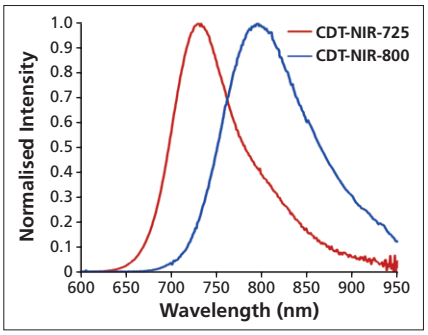



**Clinical monitoring in traditional healthcare settings**

- With a typical wearable battery CDT technology pulse oximeters can operate continuously for more than 1 day, or periodically for ~ 1 week
- This enables a range of uses from high intensity continuous monitoring (eg. overnight studies) of for longer term monitoring patches

## CDT's Near-Infrared (NIR) OLEDs:

- Enables pulse oximetry products
- Opens the opportunities for new applications both as a stand-alone device and when combined with NIR OPD




| Emitter | $\lambda_{max}$ | Voltage | Current | Radiant Power | Power Consumption |
|---|---|---|---|---|---|
| CDT-NIR-725 | 725 nm | 3.3 V | 12 mA/cm² | 2.0 mW/cm² | 41 mW/cm² |
| | | 5 V | 87 mA/cm² | 9.7 mW/cm² | 440 mW/cm² |
| CDT-NIR-800 | 800 nm | 3.3 V | 2.8 mA/cm² | 0.2 mW/cm² | 9 mW/cm² |
| | | 5 V | 17 mA/cm² | 1.2 mW/cm² | 87 mW/cm² |

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