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(54) **METHODS AND SYSTEMS FOR POWER OPTIMIZATION IN A MEDICAL DEVICE**

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This patent is subject to a terminal disclaimer.

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(51) **Int. Cl.**

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**A61B 5/021** (2006.01)  
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(52) **U.S. Cl.**

CPC ..... **A61B 5/7285** (2013.01); **A61B 5/021** (2013.01); **A61B 5/02416** (2013.01); **A61B 5/02433** (2013.01); **A61B 5/14551** (2013.01)

(58) **Field of Classification Search**

CPC ..... A61B 5/021; A61B 5/02416; A61B 5/14551; A61B 5/7285  
See application file for complete search history.

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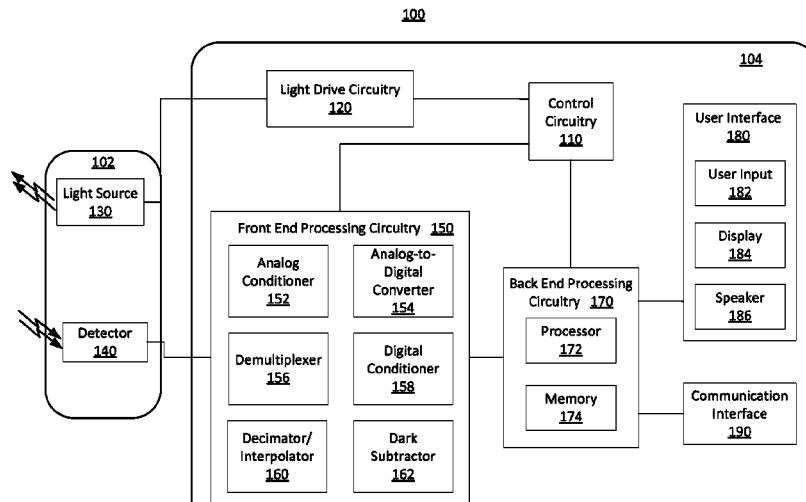
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(57) **ABSTRACT**

A physiological monitoring system may use photonic signals to determine physiological parameters. The system may vary parameters of a light drive signal used to generate the photonic signal from a light source such that power consumption is reduced or optimized. Parameters may include light intensity, firing rate, duty cycle, other suitable parameters, or any combination thereof. In some embodiments, the system may use information from a first light source to generate a light drive signal for a second light source. In some embodiments, the system may vary parameters in a way substantially synchronous with physiological pulses, for example, cardiac pulses. In some embodiments, the system may vary parameters in response to an external trigger.

**32 Claims, 30 Drawing Sheets**



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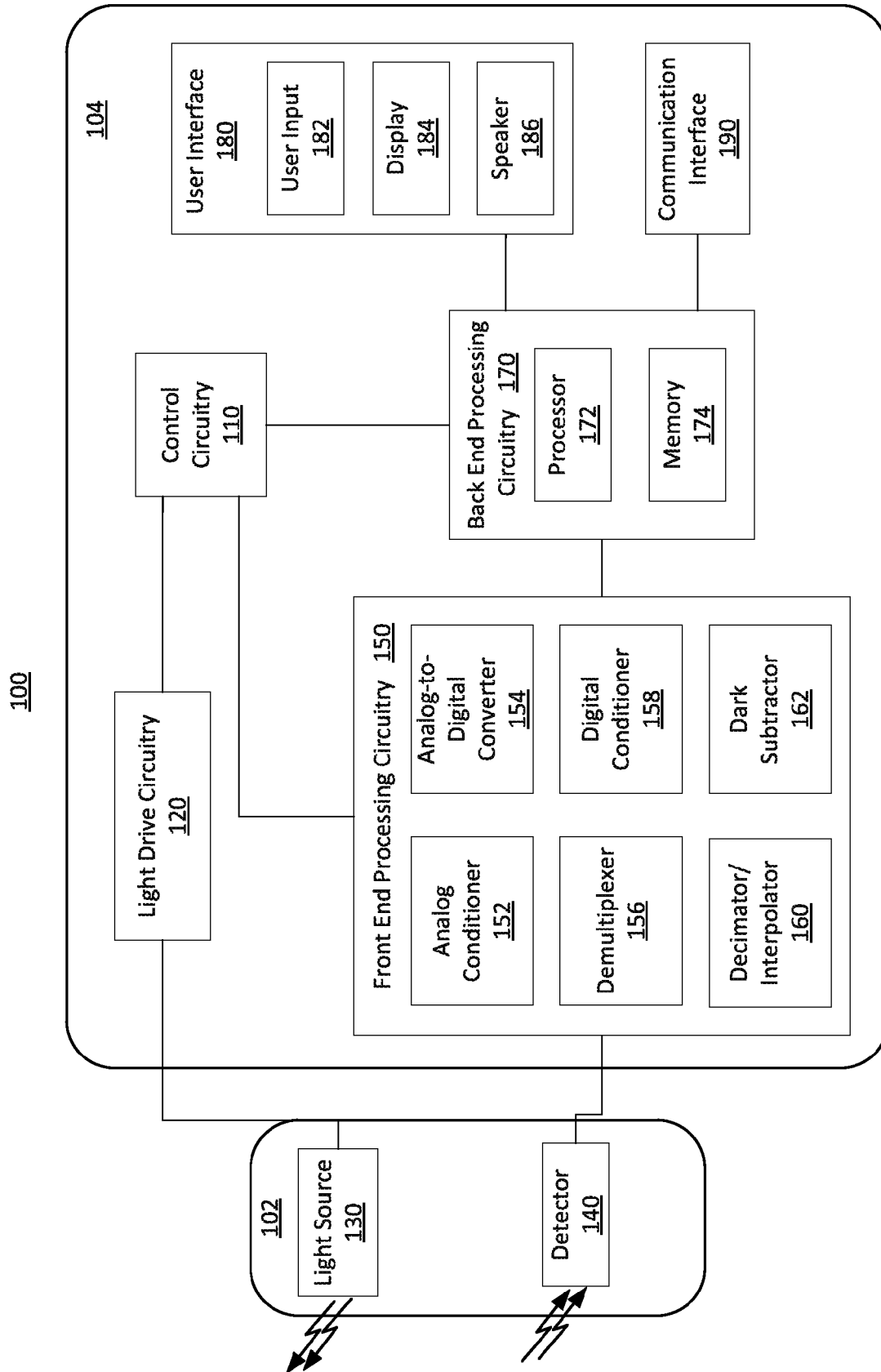


FIG. 1

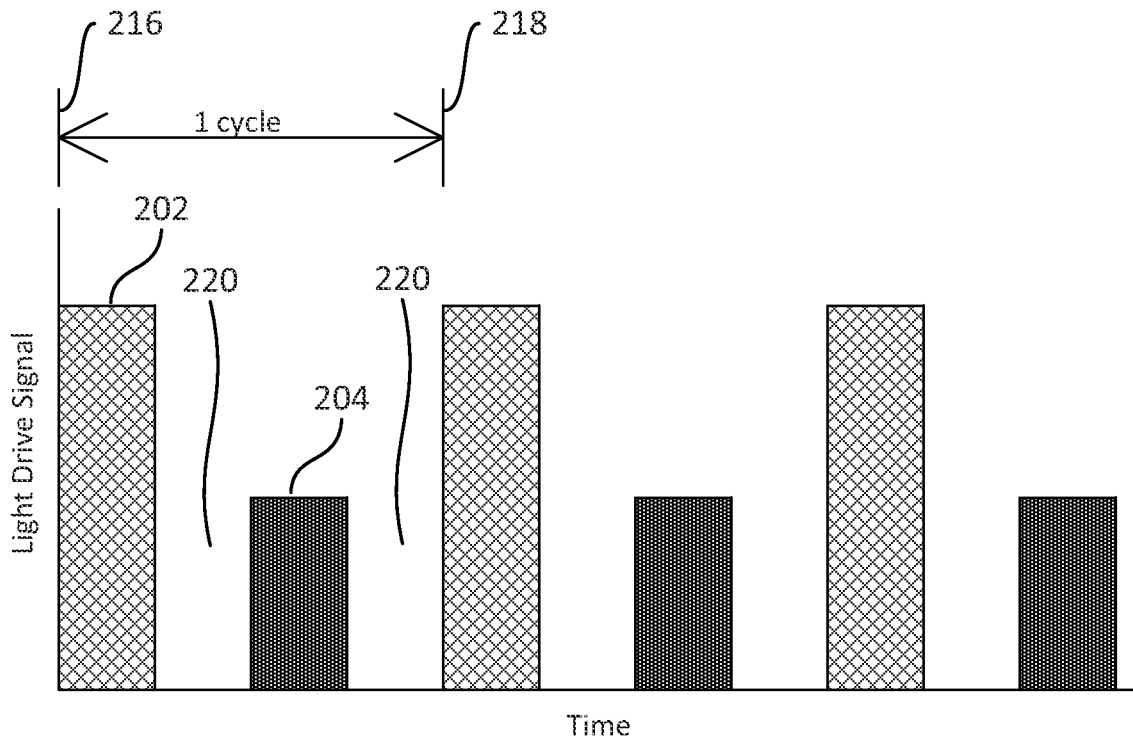


FIG. 2A

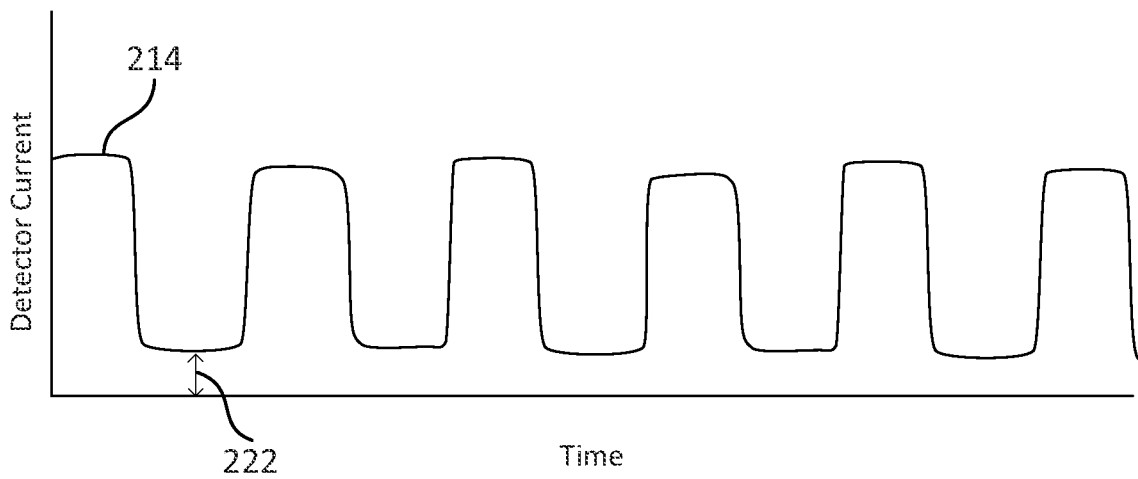


FIG. 2B

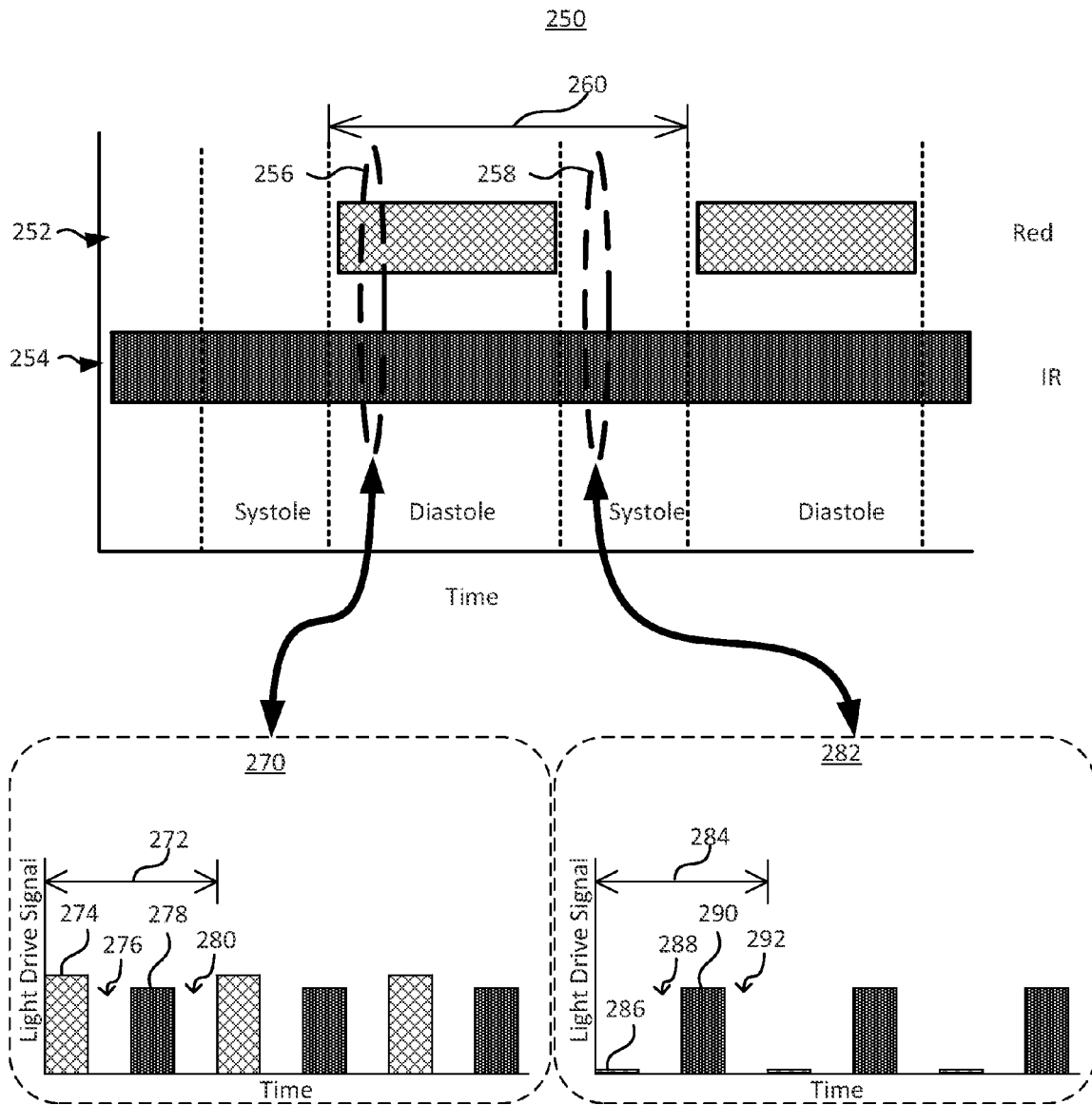


FIG. 2C

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