

Long-distance Night Monitoring System Technology Using Pulse Laser Lighting

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⇒ Night monitoring system technology using pulse later lighting to detect an object at a long distance

Client / Market

- Domestic companies with demand for night monitoring device (surveillance camera, security system, etc.)
- Companies with demand for portable day/night monitoring device for military use
- Civilian industry (securing vision through smoke during fire, night vision for car, object alarm system for driving in fog or rain, unmanned night safety and security field, etc.)

Necessity of this Technology

- Existing night monitoring system uses a large lamp or LED with a large divergence angle, which is insufficient for seeing objects at a long distance.
- The U.S. currently has the best technology for long distance night monitoring system, but the country has banned exporting this system, and it is unlikely that ban will be lifted in the future. If long distance night monitoring system can be developed in Korea, it will be a promising exporting item due to the export prohibition of corresponding system in the U.S.

Technical Differentiation

- Existing night monitoring system used a lamp or LED, but this technology uses laser which boasts better straightness than other light sources and enables to see objects from afar.
- Using near infrared laser that cannot be seen with eyes, it can visualize objects in the far distance, which makes it suitable for military use.
- Power consumption decreases with the use of pulse laser.
- Portable-size module is developed.

Excellence of Technology

- Development of long-distance night imaging source using surface light emitting diode (VCSEL) is completed.
- With the narrow wavelength range, image can be obtained using a filter in fog or when interrupted with flame.

DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

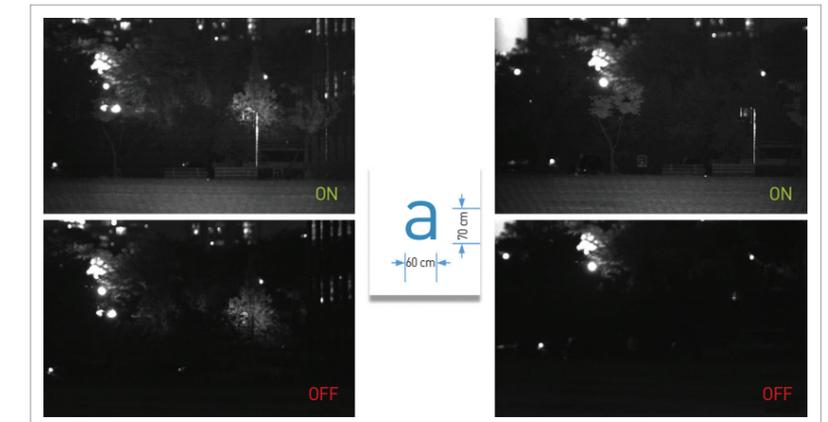
Other



TECHNOLOGY READINESS LEVEL [TRL]

Research, basic explanation | Project concept or idea development | Technology idea verification | Prototype development | Trial product production/evaluation in similar environment | Pilot field demonstration | Development and optimization of commercial model | Commercial product demonstration | Mass production and initial market launch

- Can be used for far distance up to several hundred meters.
- Using a device with this technology applied, the lower-case letter 'a'-size of 70 cm × 60 cm—was photographed from approximately 500 m ahead at night both when the IR laser was on and off. It was confirmed that the letter 'a' could be detected when the IR laser is on.



Current Intellectual Property Right Status

KNOW-HOW

- Pulse laser lighting optical system design technology
- Pulse laser and image sensor synchronization technology
- Laser speckle removal technology
- Optics and jig design technology for optical system miniaturization
- Battery miniaturization technology