

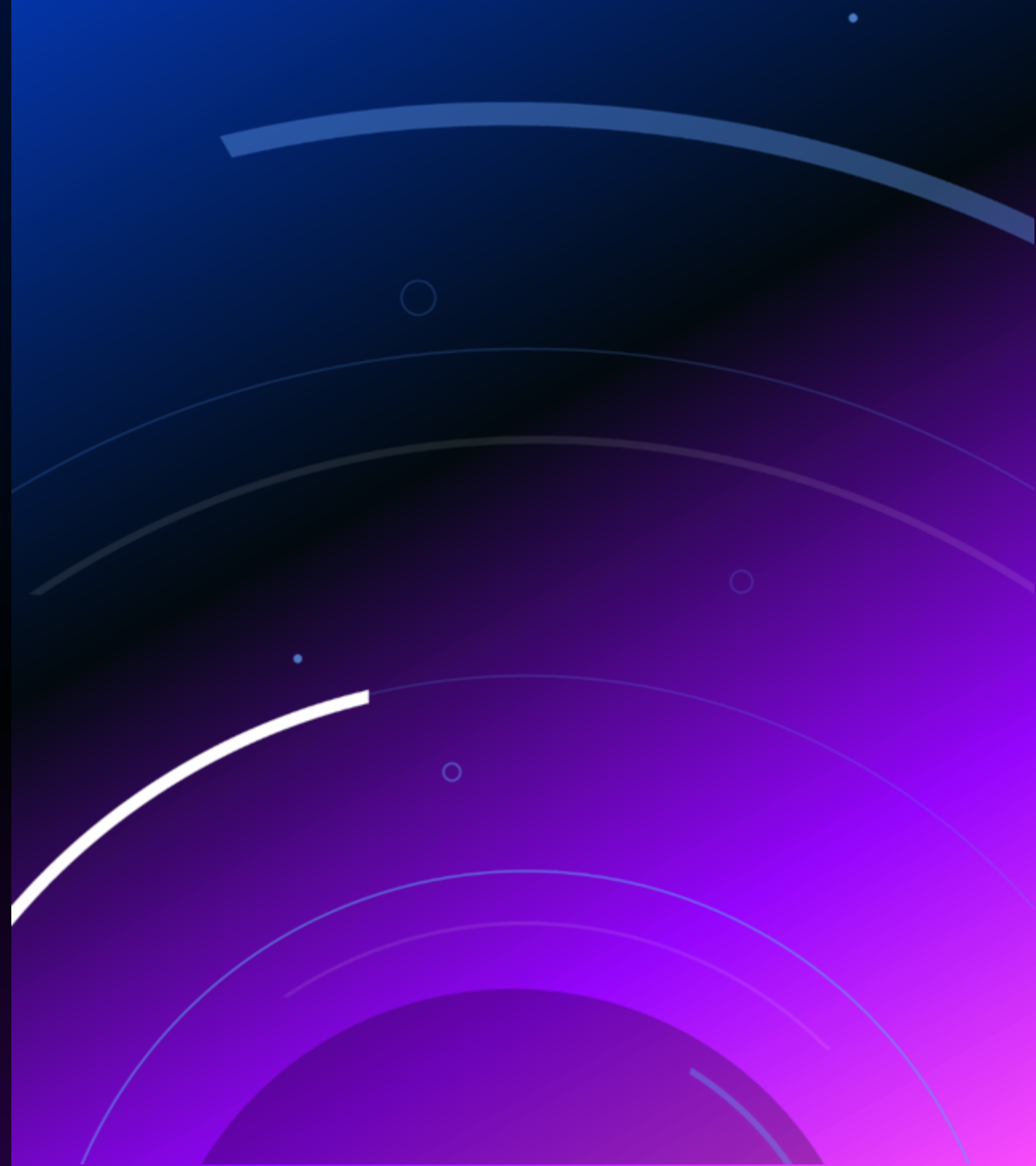


LI-FI

LIGHT FIDELITY

INTRODUCTION

Li-Fi stands for Light Fidelity, a wireless communication technology using light to transmit data.



COMPONENTS OF LI-FI SYSTEM

COMPONENT	FUNCTION
LED Bulb	Transmits data via light
Photodiode	Receives light signals
Signal processor	Converts signals to usable data

HOW LI-FI WORKS

- LED bulbs modulate light to transmit data.
- Photodiode receives light signals and converts them to electrical signals.
- Requires line-of-sight for effective communication.

LI-FI VS WI-FI COMPARISON

FEATURE	LI-FI	WI-FI
medium	Light waves	Radio waves
Speed	Very high	Moderate to high
Security	More secure	Less secure
Range	Short	Longer
Interference	Minimal	Can be significant

ADVANTAGES

- Speeds up to 100 Gbps in lab conditions.
- Uses visible light spectrum—10,000 times broader than RF spectrum.
- Ideal for high-data environments.
- Light doesn't penetrate walls—limits unauthorized access.
- No electromagnetic interference—safe for hospitals and airplanes.
- Works in RF-restricted zones.

DISADVANTAGES

- Requires direct line-of-sight.
- Doesn't work in sunlight or complete darkness.
- Signal blocked by physical obstacles.
- Needs LED transmitters and photodiode receivers.
- Most devices don't support Li-Fi natively.
- Costly to implement on a large scale.



APPLICATIONS OF LI-FI

- Healthcare: RF-free zones
- Aviation: In-flight communication
- Underwater communication
- Smart homes and factories



CONCLUSION

Li-Fi is a wireless communication technology that uses light instead of radio waves. It offers ultra-fast data transfer speeds and enhanced security.

Li-Fi is ideal for environments like hospitals and airplanes where RF interference is a concern.

THANK YOU

