

# Hackathon Theme Release: Signal

*Understanding the theme and project ideas*

Hey Hackathon Participants,

Get ready! We're excited to announce the theme for this year's hackathon: **Signal!**

This theme is intentionally broad, allowing for a huge range of creative interpretations and innovative projects. Let's dive into what "Signal" means and how you can use it to inspire your creations.

## What is a Signal?

At its core, a *signal* is data or energy that conveys information. Signals are everywhere, in many different forms:

- **Electrical:** Voltage or current changes.
- **Digital:** Binary data transmitted over a network.
- **Audio:** Sound waves carrying information.
- **Visual:** Light patterns representing images or video.
- **Wireless:** Radio waves transmitting data.
- **Biological:** Chemical or electrical signals within living organisms.
- **Environmental:** Changes in temperature, pressure, or other conditions.

## Interpreting the Theme: Unleash Your Creativity

Think creatively! Your project can:

- **Capture** a signal from the environment.
- **Transmit** a signal to another device or system.
- **Filter** unwanted noise from a signal.
- **Analyze** the characteristics of a signal.
- **React** to a signal in a meaningful way.
- **Visualize** a signal's properties.

## Project Ideas to Get You Started

## Programming/Software:

- Audio signal processing ( noise reduction, music generation).
- Network monitoring tools (detecting anomalies).
- AI-powered pattern detection in data streams.
- Signal-based games (reacting to user input).
- Encryption/decoding algorithms.
- Computer vision applications (object detection).

## Engineering/Hardware:

- Sensor systems for environmental monitoring.
- IoT devices that transmit sensor data.
- Wearable technology that tracks bio-signals.
- Smart alarm systems that respond to events.
- Signal processing circuits.
- Robotics projects controlled by sensor input.

## Hybrid Projects: Combine Hardware & Software!

We encourage you to explore hybrid projects that combine hardware and software elements. Some examples:

- A sensor that transmits data to a mobile app.
- A physical signals (light, temperature) displayed on a dashboard.
- A system where human input (voice commands) controls a machine.

## Judging Criteria

Your projects will be evaluated based on:

- **Creativity:** How original and innovative is your idea?
- **Technical Depth:** How challenging and well-executed is the technical implementation?
- **Problem Solving:** What problem does your project solve, or what benefit does it provide?
- **Theme:** How well does your project interpret the theme, and how well you managed to creativity implement it.
- **Presentation:** How clearly and effectively do you communicate your project's purpose and functionality?

**Important Reminder:** The primary goal is *learning and experimentation*. Don't worry about writing perfect code; focus on exploring new technologies and pushing your boundaries. Have fun and create something amazing!

We can't wait to see what you build!

Best,  
The Hackathon Team