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Anatomy of a Wireless Sensor Node

Terms:
Avnet [1] Dragon Innovation [2] Hardware Studio [3] IoT [4] Kickstarter [5]

An Introduction to IoT Components from Hardware Studio

Whether you're designing a wearable device, an interactive lighting system, or even a jet engine, the basic topology of an IoT-enabled wireless sensor node always includes three elements:

- Sensors – gather information about the environment and condition signals before transmitting to the microprocessor.
- Microcontrollers – process the signal from sensors, determine appropriate responses, manage power consumption and local memory.
- Communication – wireless chips, radio modules and protocols needed to transmit the information between devices and to the cloud.

Some consideration for selecting the appropriate components for your wireless sensor node include:

- How much intelligence is required in the sensor node? How much intelligence can be relegated to the cloud? This will dictate whether you should use an 8-, 16- or 32-bit processor, how much memory will need to be attached, and what clock rate you'll use to run your IoT node.
- Where is the data concentrated and how often does it have to be communicated from the remote sensor node? This will guide your choice between different communication technologies and protocols such as ZigBee, BTLE, WIFI, etc.
- What is the power source? Batteries, offline power supplies, or energy harvesters? This can impact your choice of sensors, microprocessor and communication module. For battery-powered and energy harvesting nodes, a key concern is energy transfer efficiency – you don't want your voltage regulator tapping your supply voltage.

For more comprehensive guidance on IoT components, read An Introduction to IoT Components. [6] To learn more about product design efficiency, apply to the Hardware Studio Connection [7].

Multimedia

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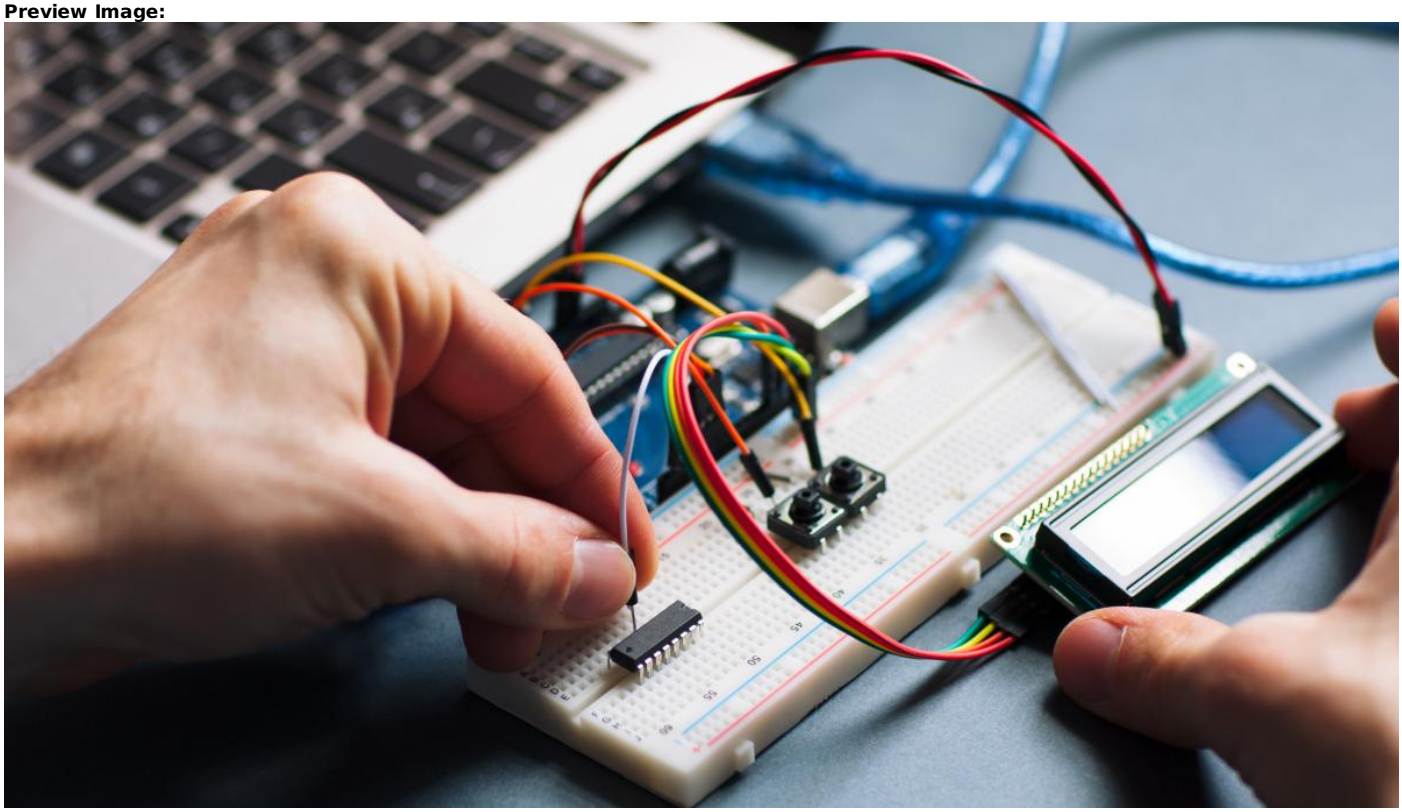

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