IOT HARDWARE DEVELOPMENT INSIGHTS REPORT

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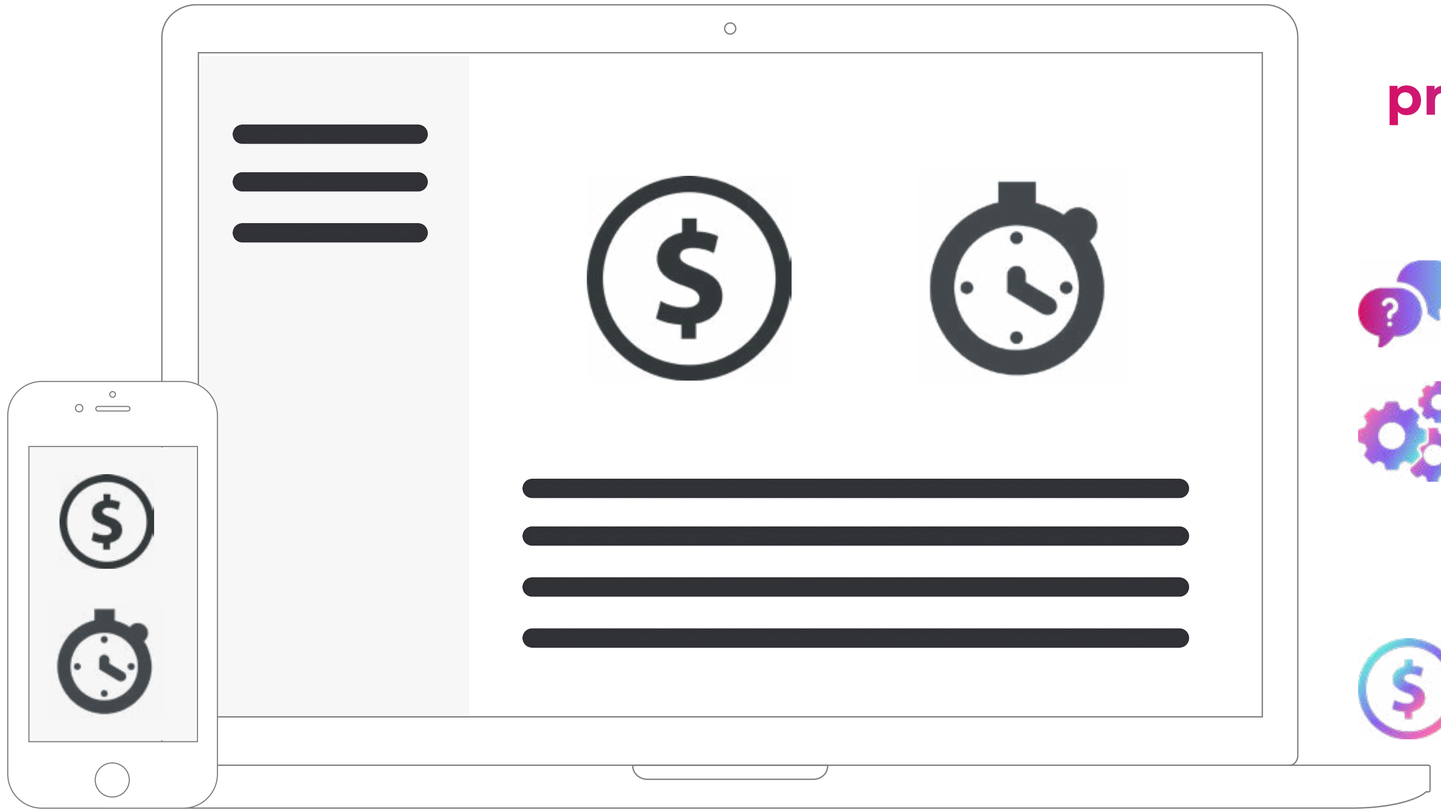
THE TOOL BEHIND THE INSIGHTS

When Cisco shared the results of a survey that highlighted that **60% of businesses underestimate** what it takes to make an IoT product, and that **75% of projects were considered failures** -

We made the decision to build the **IoT Hardware Product Development Estimator.**

We built the IoT Hardware Product Development Estimator Tool to help companies plan and estimate their products. The estimates are based off of actual projects that have gone through the ecosystem.

THE IOT HARDWARE PRODUCT DEVELOPMENT ESTIMATOR



www.ioterra.com/product-development-estimator

22 QUESTIONS

3 ENGINEERING TYPES

MECHANICAL ENGINEERING
ELECTRICAL ENGINEERING
FIRMWARE ENGINEERING

ESTIMATION RESULTS

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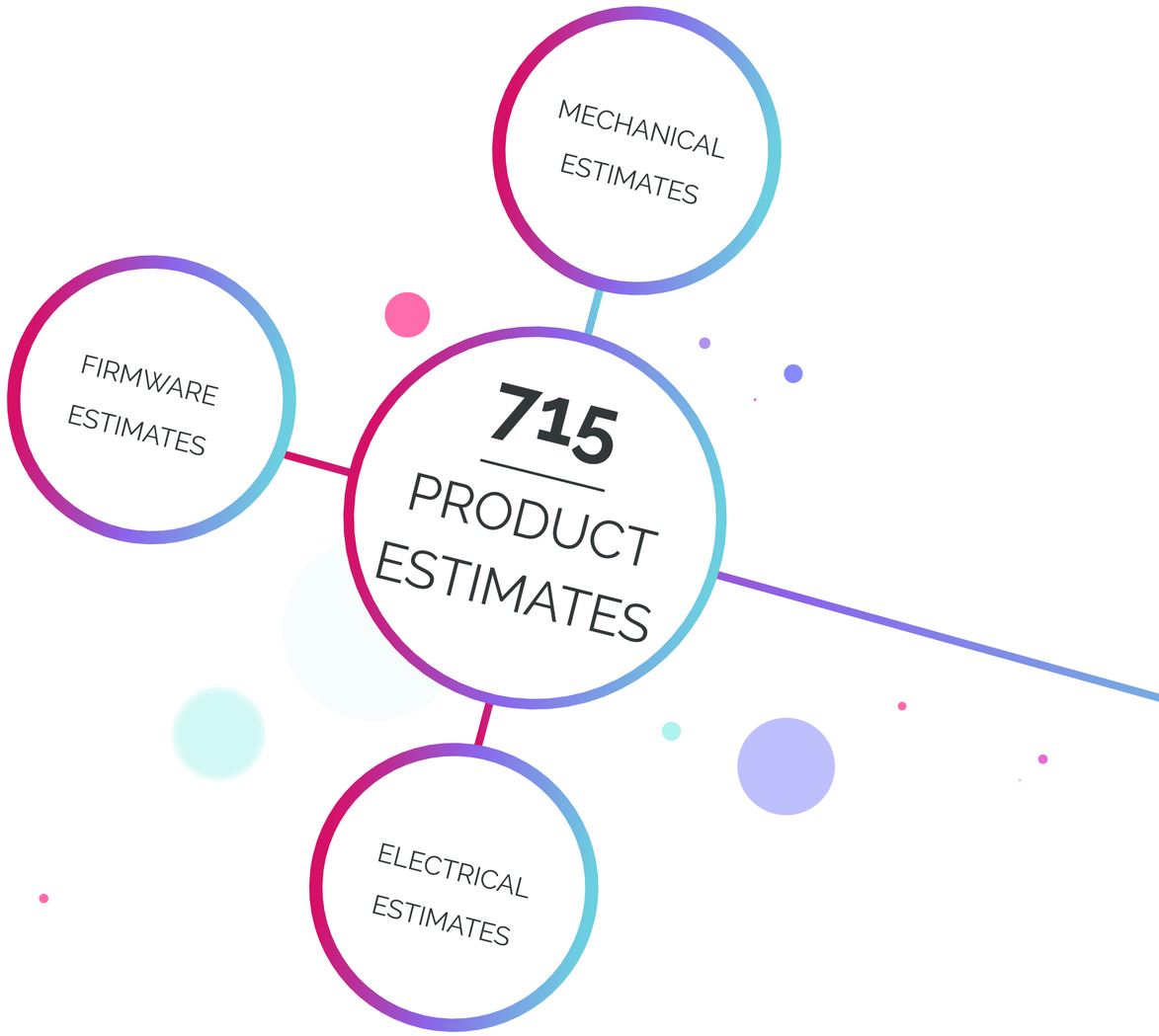
METHODOLOGY

There were a total of 715 completed submissions from around the world between January 1, 2019 and December 31, 2019.



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FOCUS

This report focused on: mechanical, electrical, and firmware development.

TIME PERIOD

The tool was launched on the web in January 2019. Throughout the year, our database and analytics solutions recorded the answers and estimates given to companies.

DEMOGRAPHICS

Our submissions were from varied company sizes, roles and industries. Insights included that **35%** of entries were from small businesses.

GOAL

To understand current IoT development initiatives' budgets and schedules.

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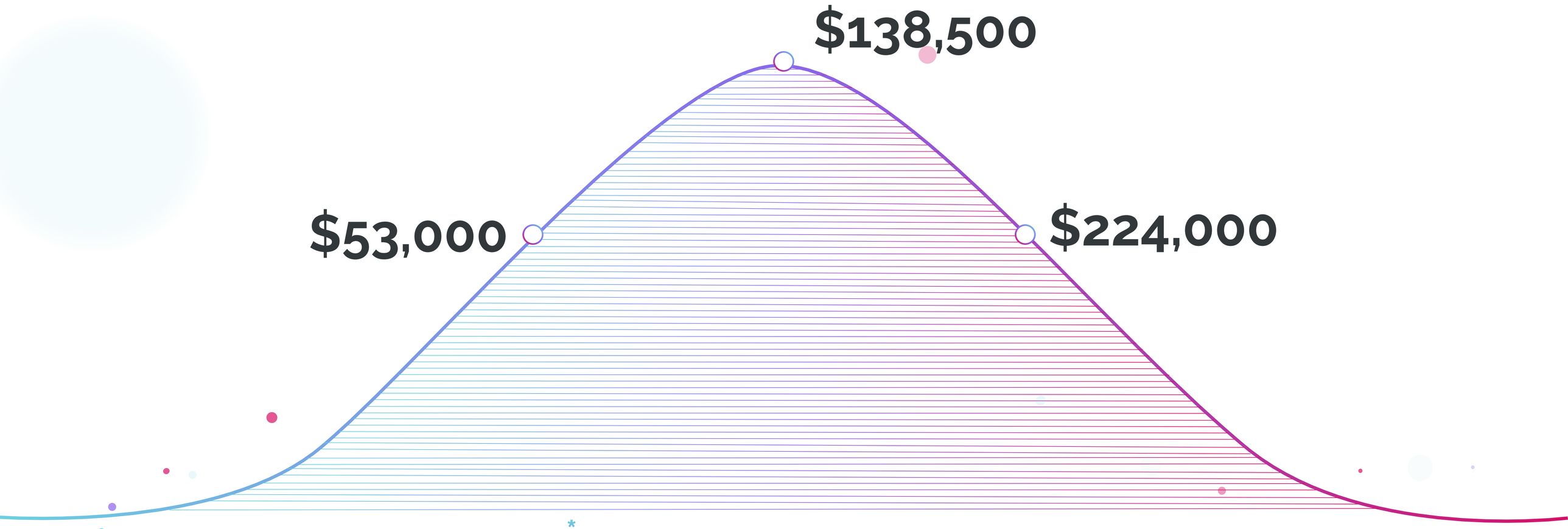
ANALYSIS OVERVIEW

What does this report mean for you?

By analyzing the results we received, we hope this can spark thoughts on how IoT is being approached by companies of all sizes, market trends in IoT development, insights on how creators of all engineering capacities are approaching their development, and what budgets and timelines these companies have to anticipate.

The average cost to develop a production prototype:*



*The mean value & +/- 1 standard deviation is shown

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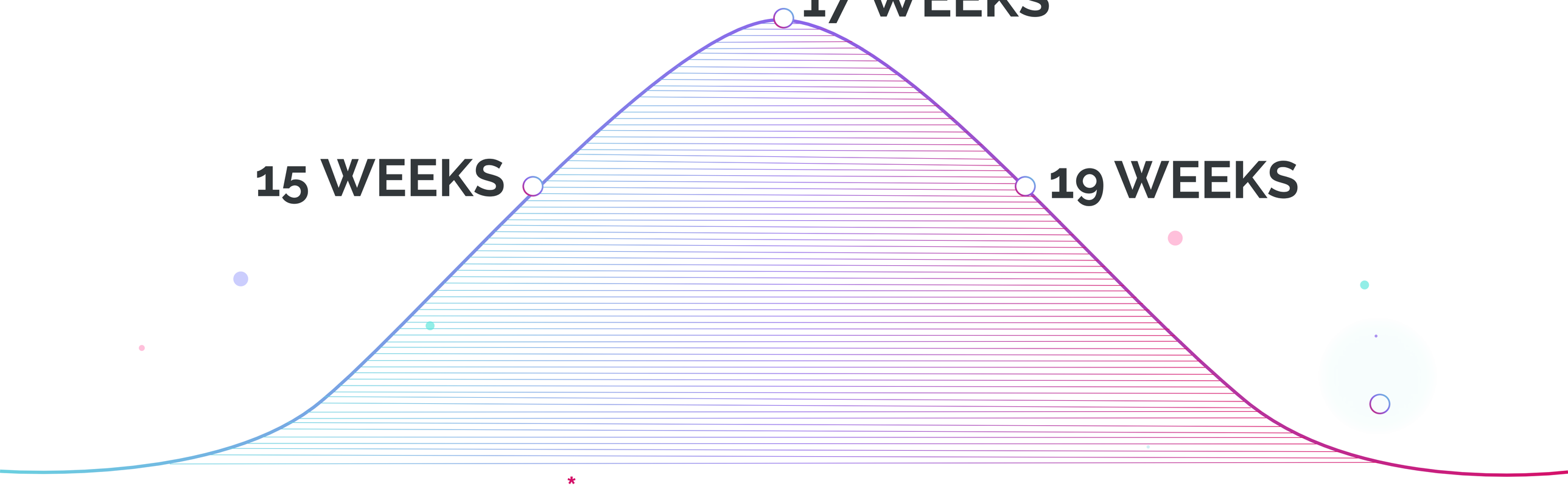
On average, how long will a production prototype take to develop?*



*The mean value & +/- 1 standard deviation is shown

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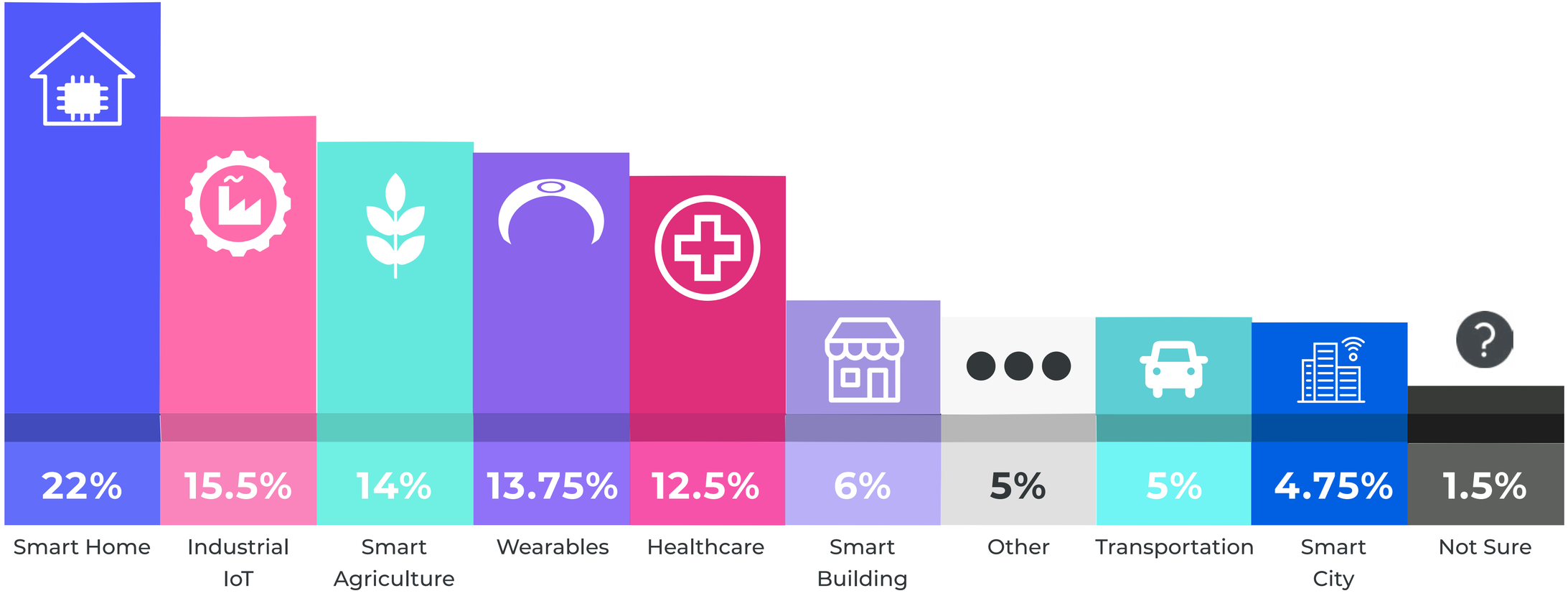
The Top Industry Verticals



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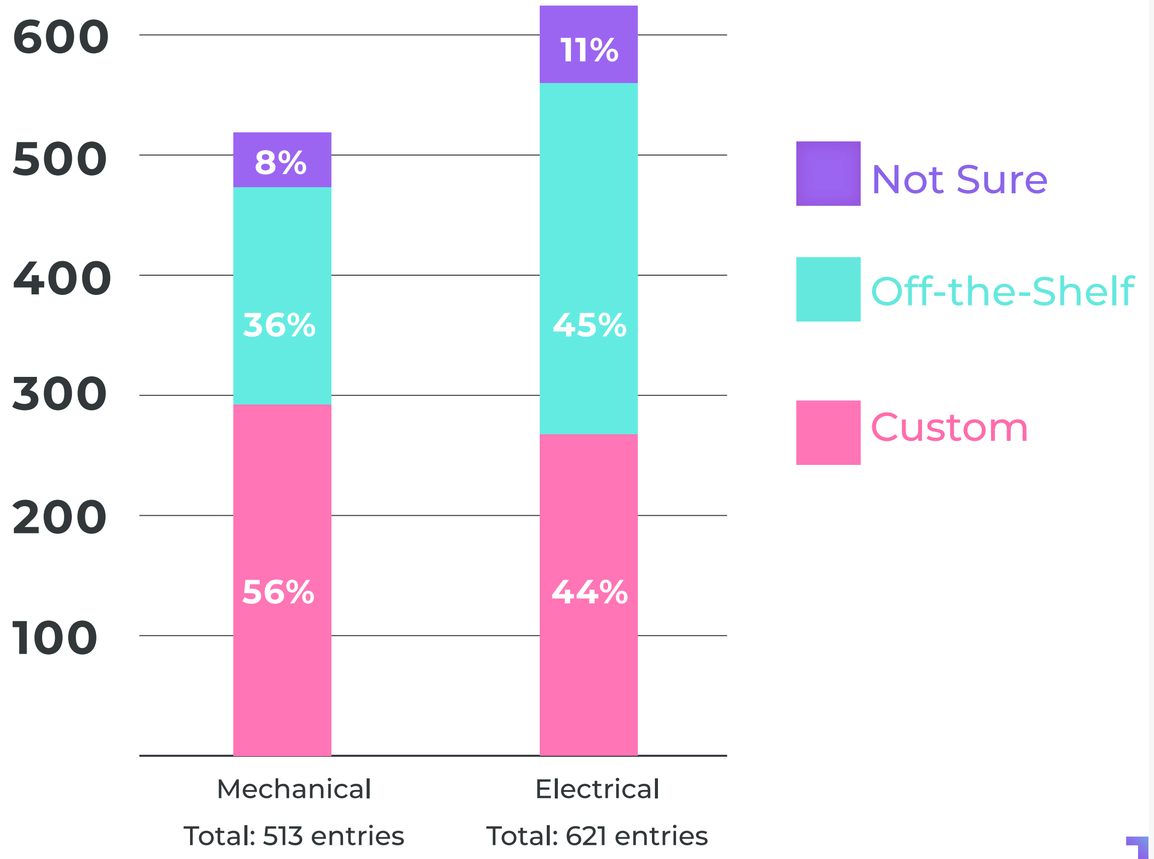
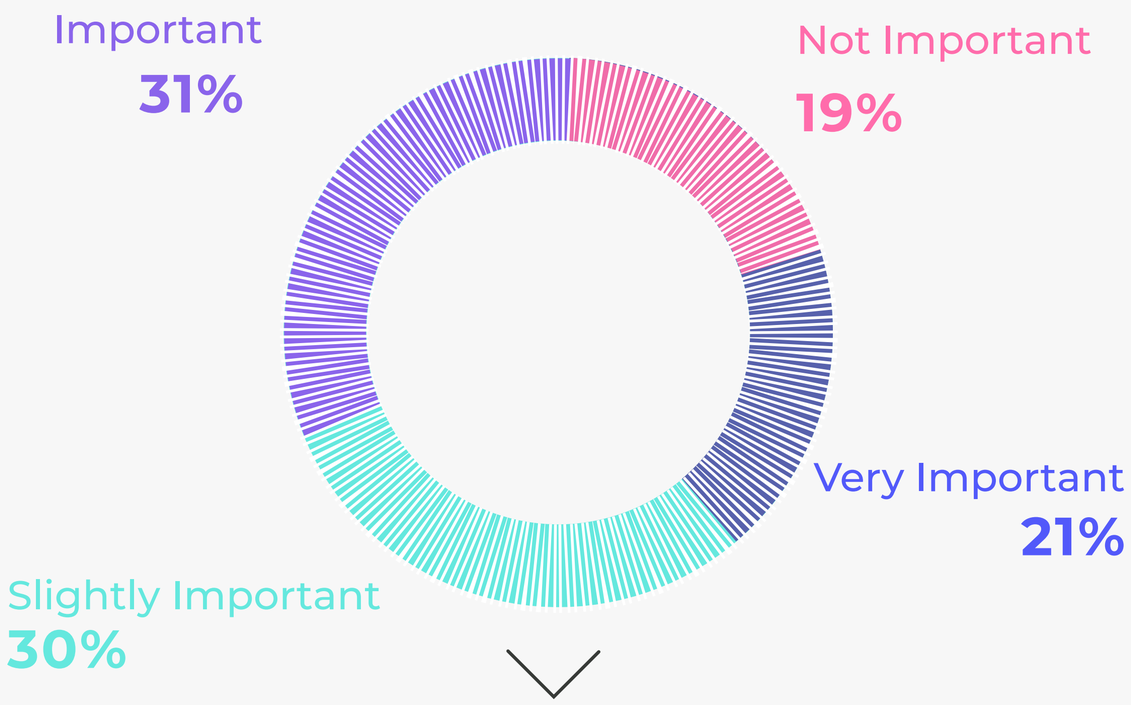
Are product developers seeking to build custom hardware or leverage off-the-shelf IoT building blocks?





How much does look and feel matter for their product?

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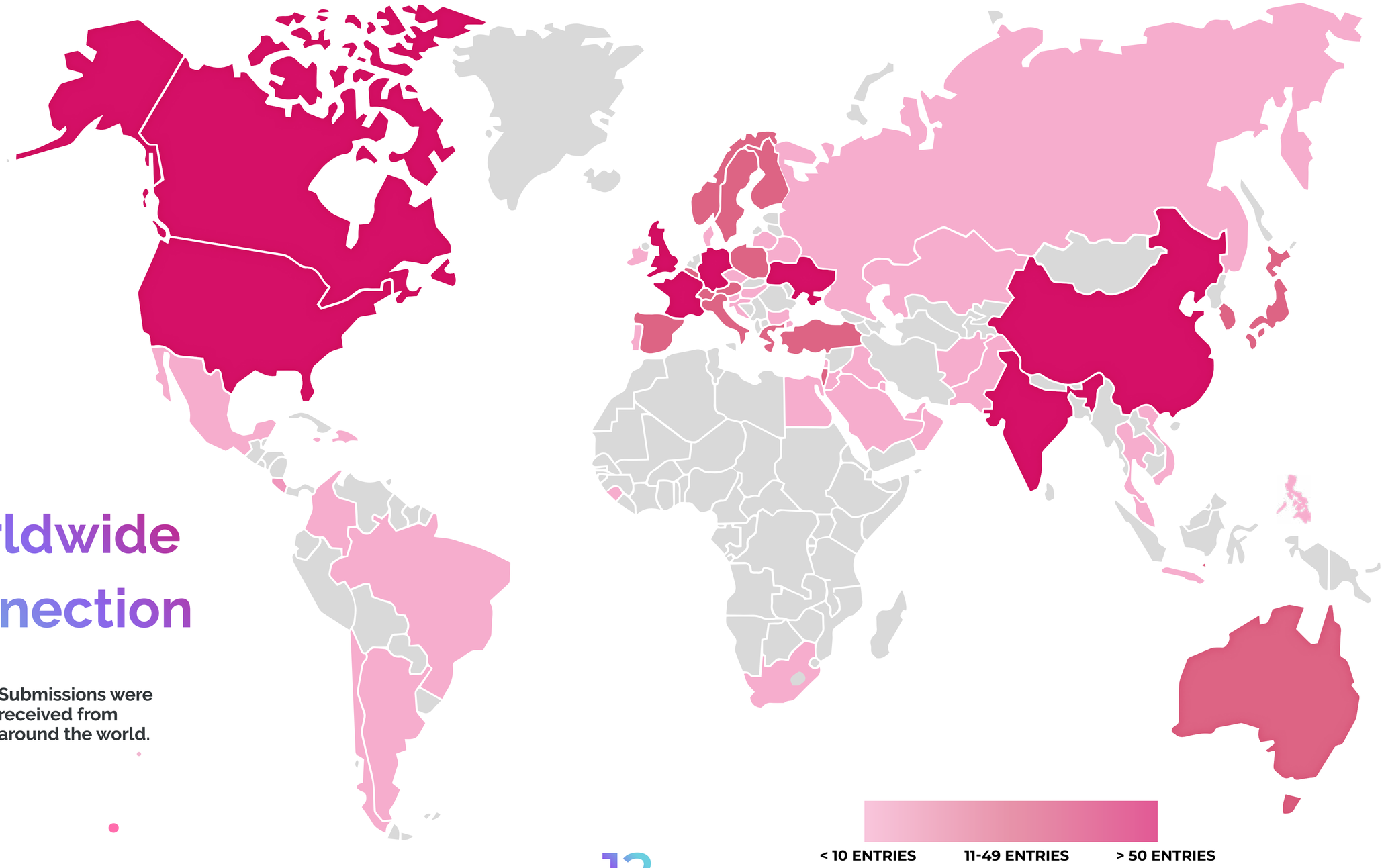
Worldwide Connection

Submissions were received from around the world.



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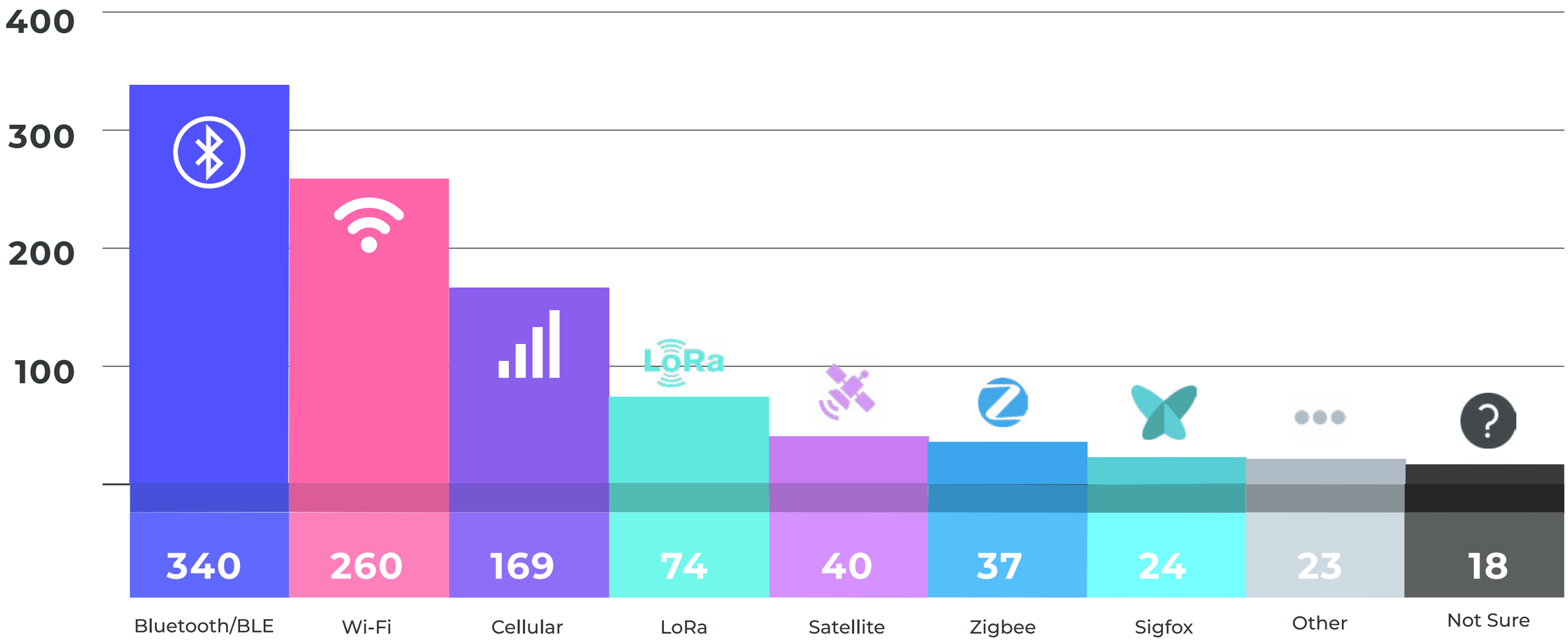
Which IoT protocols are being most used?



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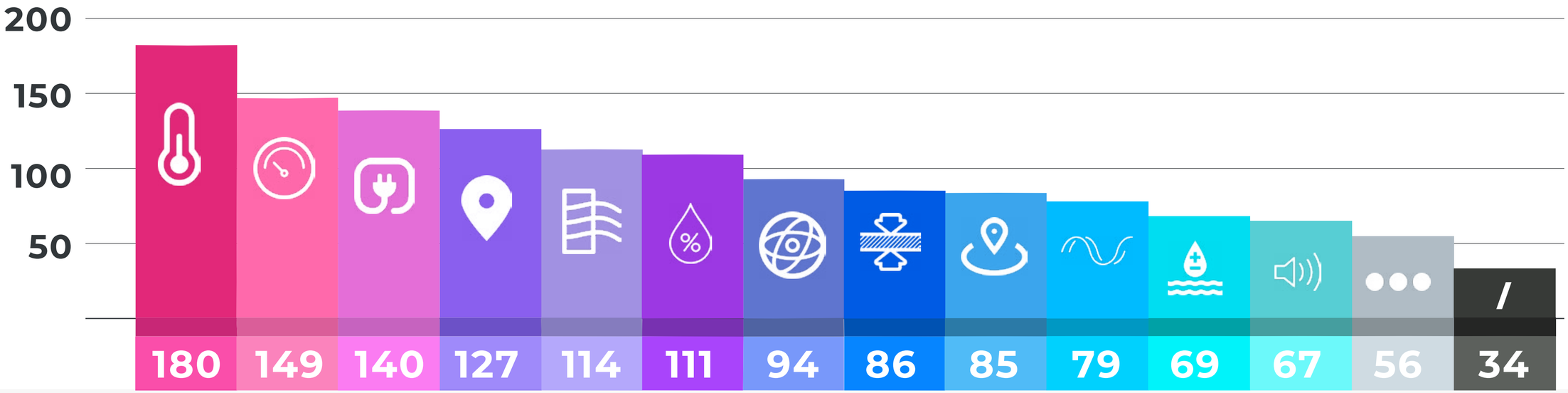
What are these devices going to measure?



Temperature
Acceleration
Electrical
Location (GPS)
Air Quality
Humidity/Moisture
Orientation
Force/Pressure
Proximity
Optical
Water Quality
Sound
Other
/ N/A

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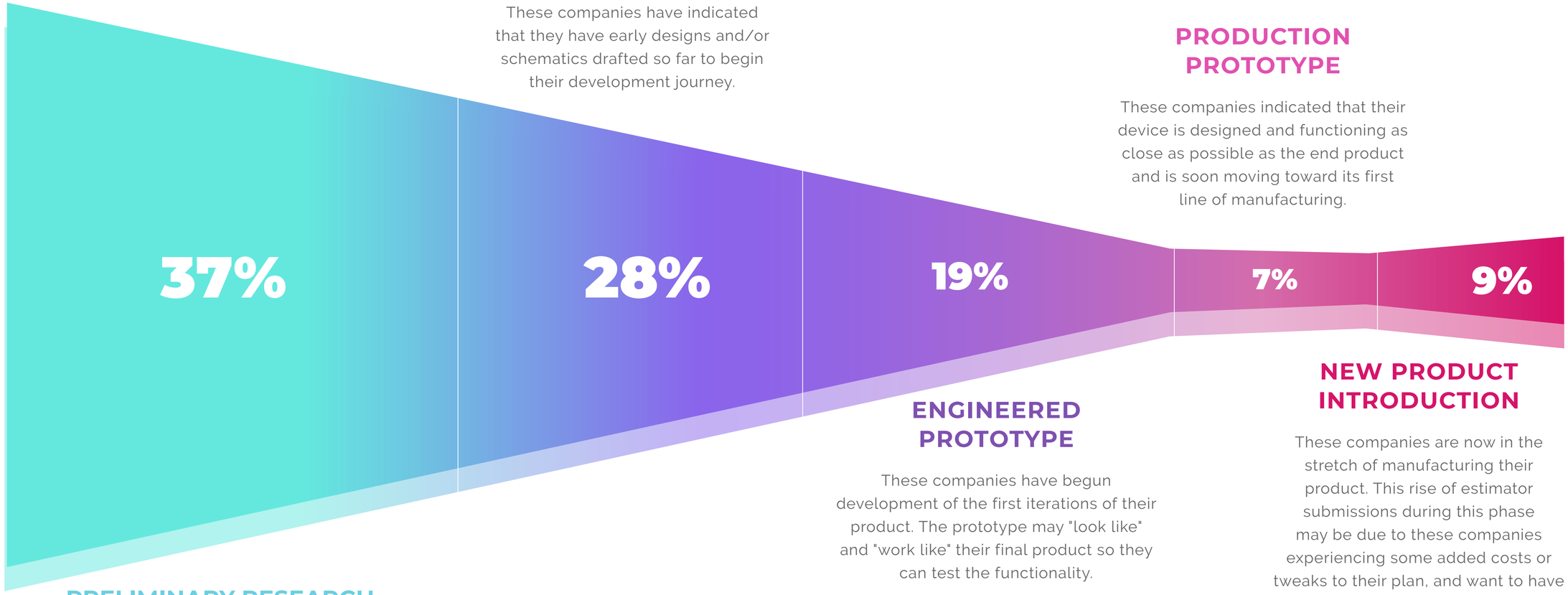
At what phase of development are companies looking for an estimation?



PRELIMINARY RESEARCH

These companies may not have started any development at the time of using the tool, and were just curious of an idea they had.

PROJECT DEFINITION

These companies have indicated that they have early designs and/or schematics drafted so far to begin their development journey.

ENGINEERED PROTOTYPE

These companies have begun development of the first iterations of their product. The prototype may "look like" and "work like" their final product so they can test the functionality.

PRODUCTION PROTOTYPE

These companies indicated that their device is designed and functioning as close as possible as the end product and is soon moving toward its first line of manufacturing.

NEW PRODUCT INTRODUCTION

These companies are now in the stretch of manufacturing their product. This rise of estimator submissions during this phase may be due to these companies experiencing some added costs or tweaks to their plan, and want to have another estimate on their product.

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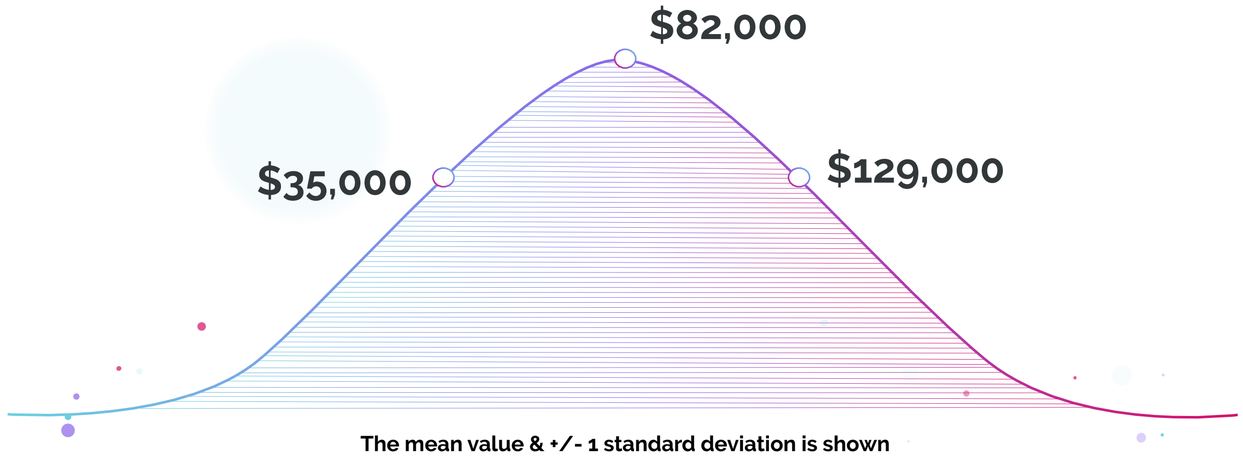
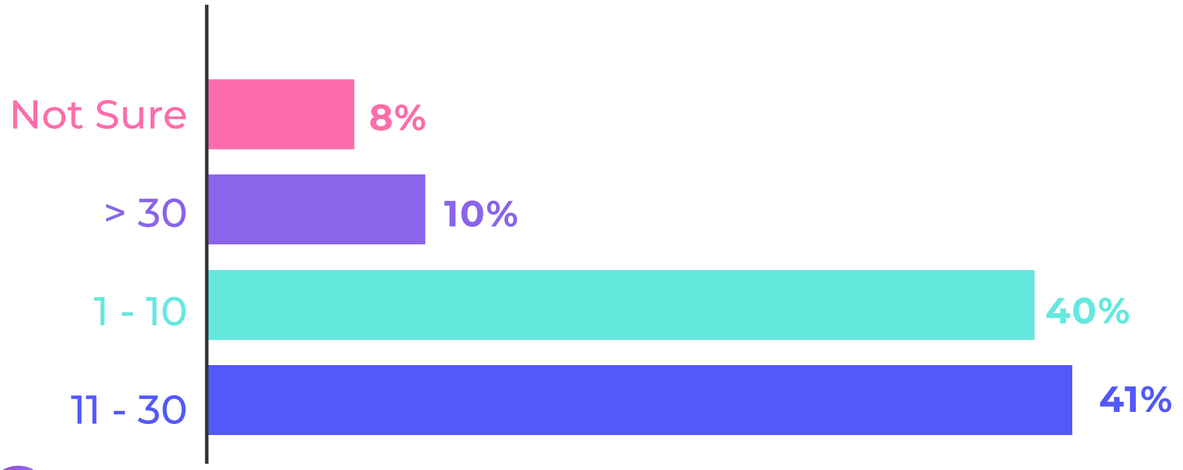
DEEP DIVE: MECHANICAL ENGINEERING

Mechanical engineering for IoT products involves analyzing, modeling, developing, and documenting the mechanical systems of the product.

The average mechanical engineering cost



How many components will be in the product?



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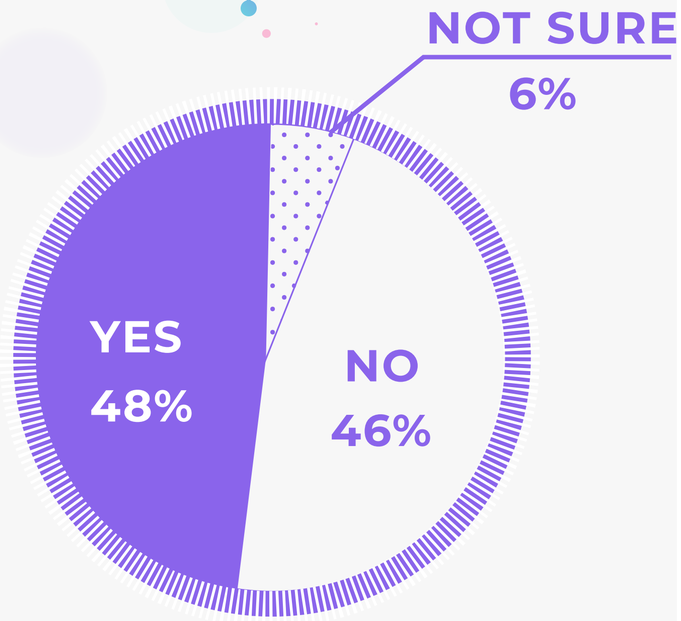
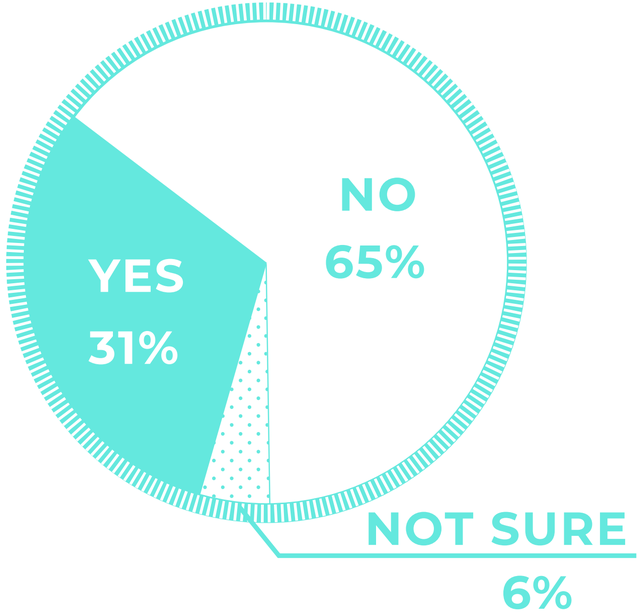
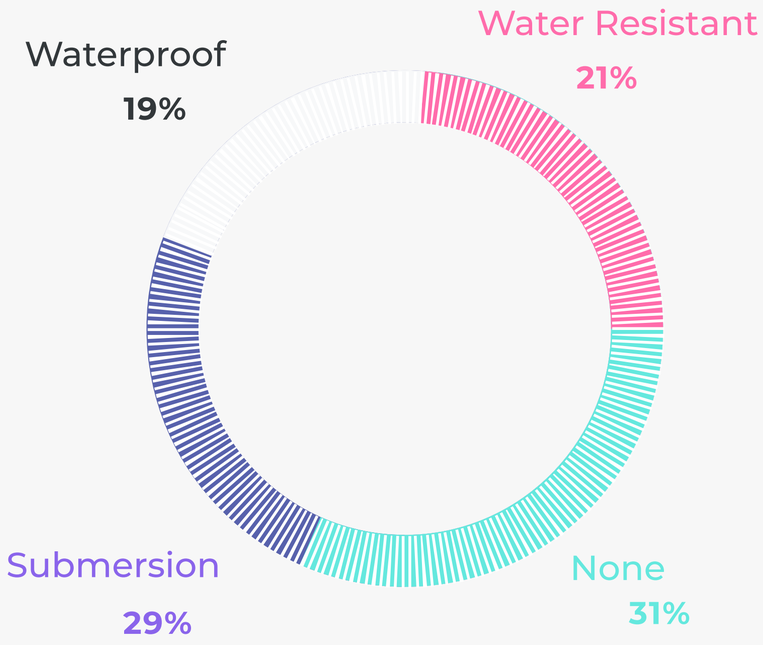


Does part miniaturization matter for the product?

Will the product have moving parts?





What level of water protection will these products have?

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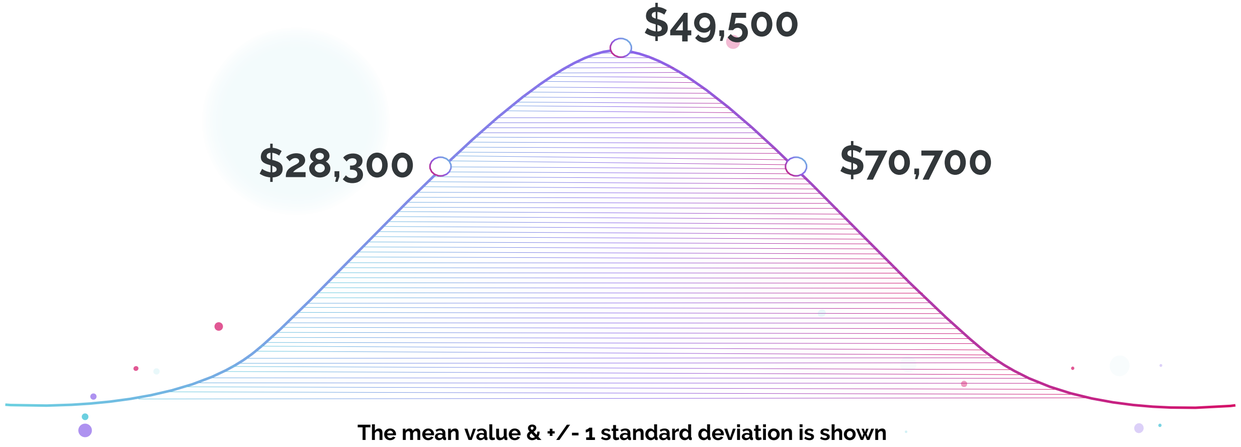
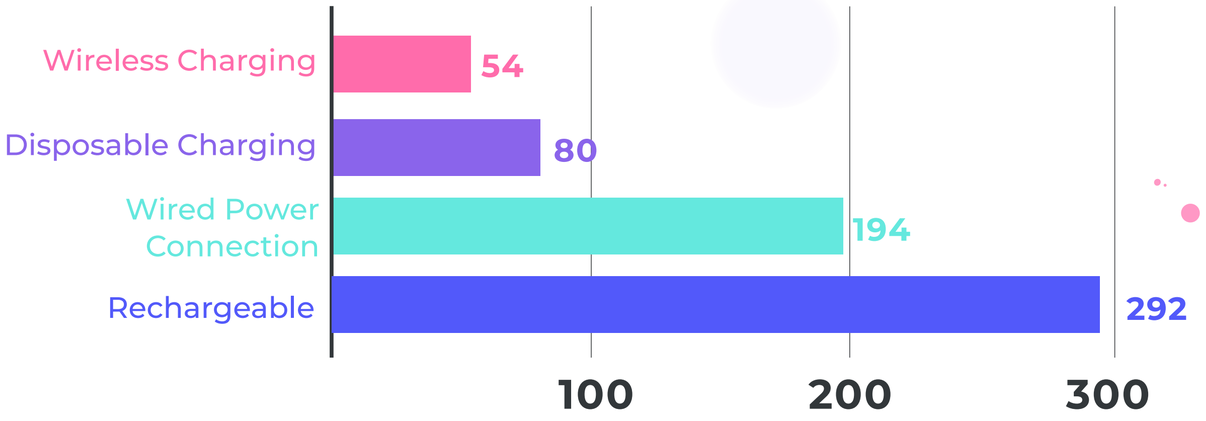
DEEP DIVE: ELECTRICAL ENGINEERING

Electrical engineering for IoT products involves developing printed circuit boards (PCBs), power systems, sensor systems, and other electrical subsystems.

The average electrical engineering cost



How will the product be powered?



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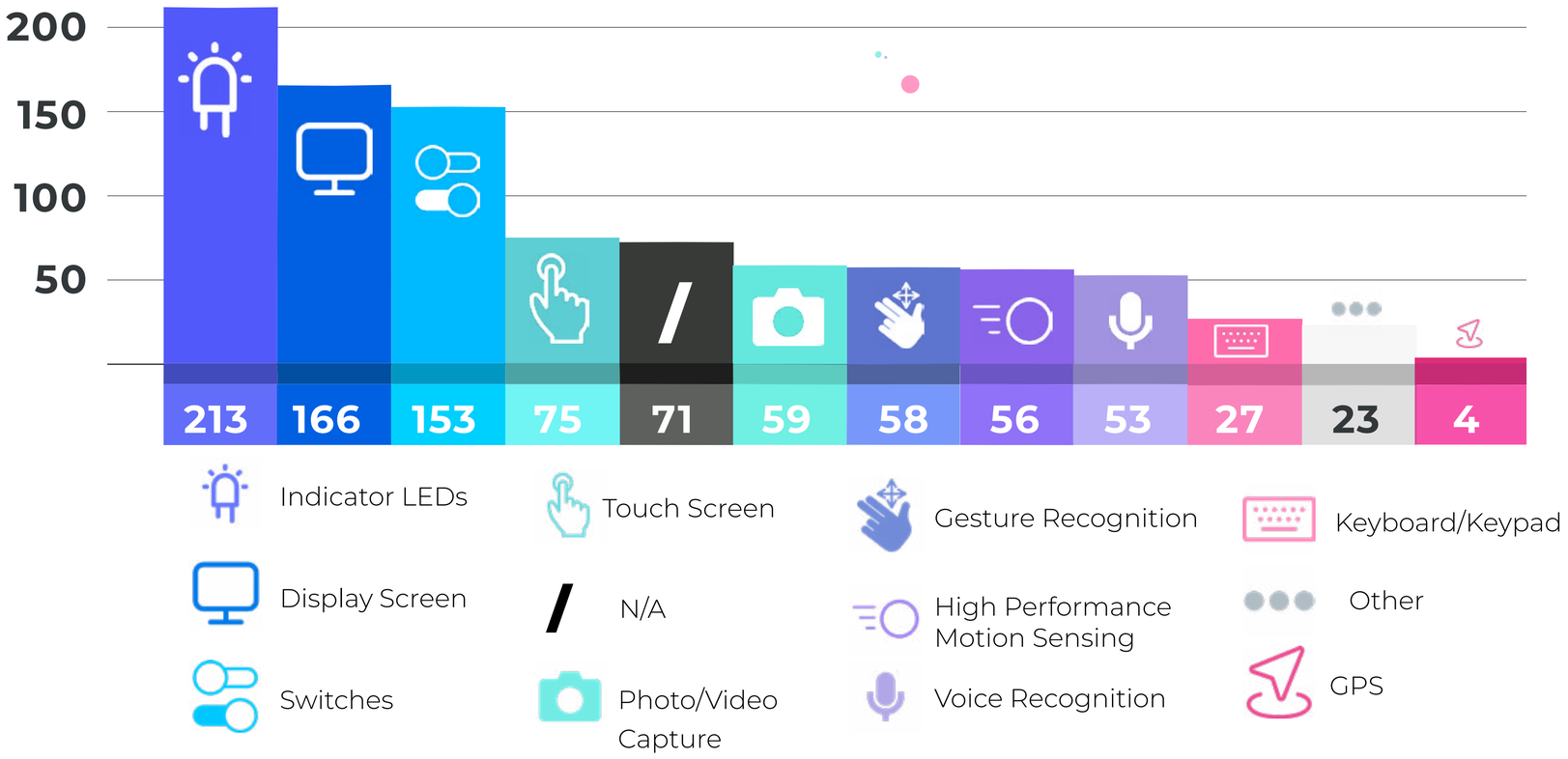
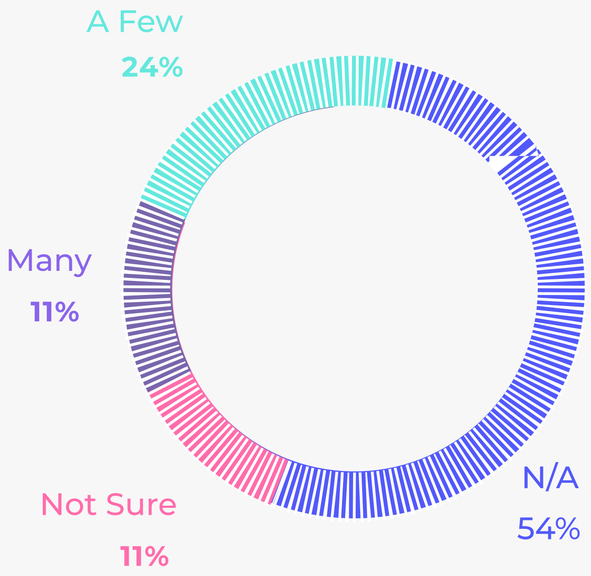
What type of components will be added to the product?





Does the product drive motors/actuators?

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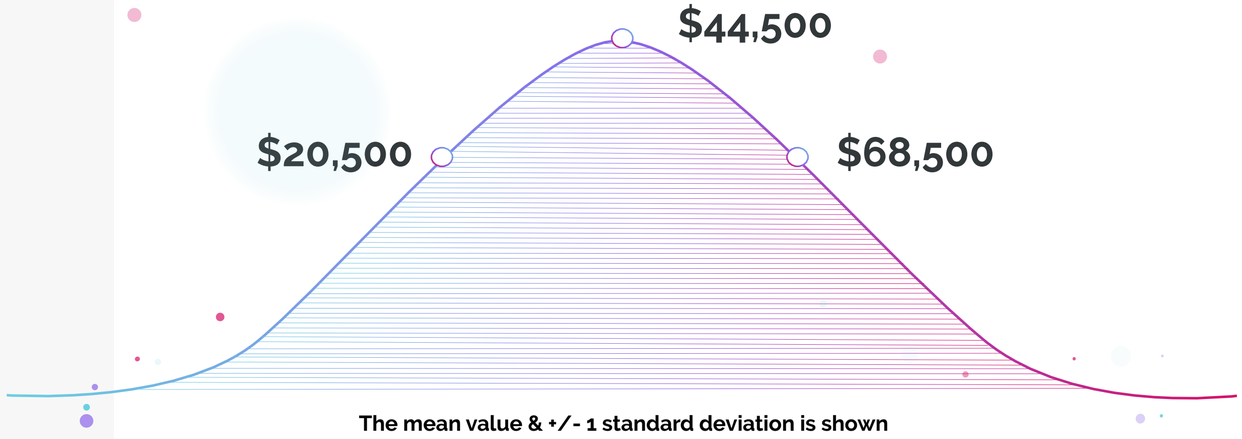
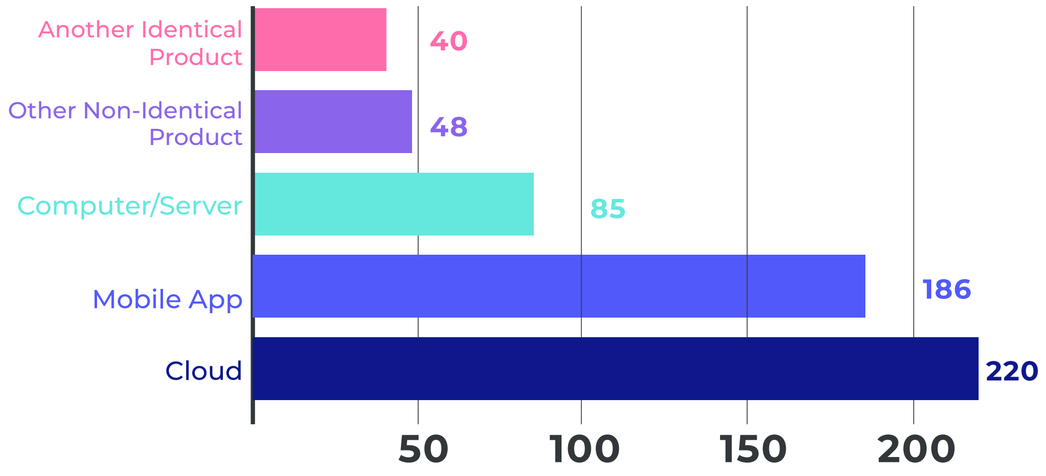
DEEP DIVE: FIRMWARE ENGINEERING

Firmware development for IoT products involves the architecture, coding, testing and documentation of the software that runs locally on the IoT product itself. The firmware controls the products behavior and its connection to the internet.

The average firmware engineering cost



What other services does the device communicate to?



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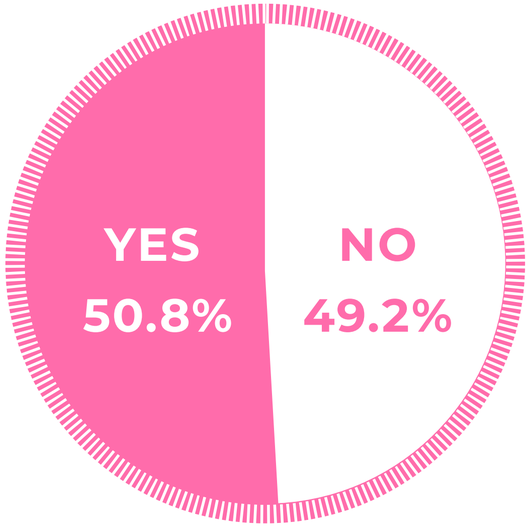
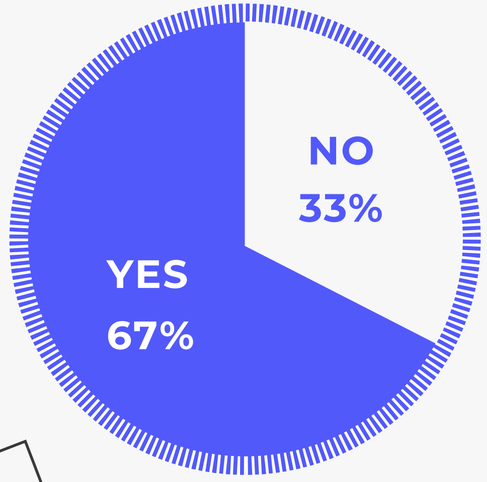
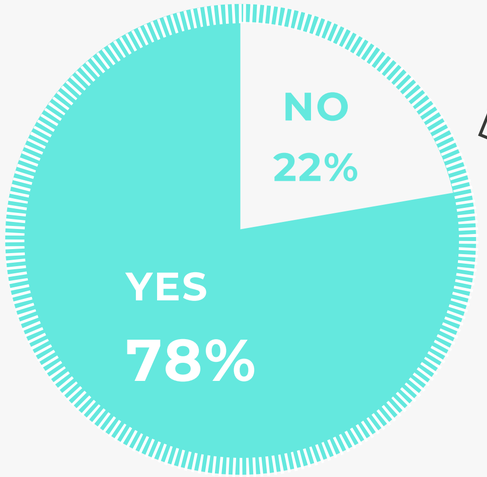
Do the companies have a firmware requirements document?

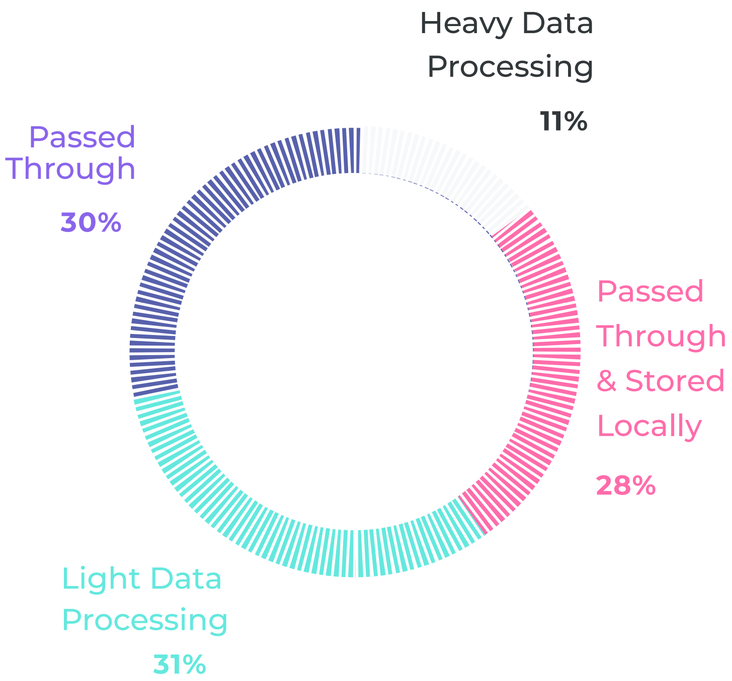




Does the device need a long battery life?



Will the device connect to a mobile app?



How will data be processed through the device?

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ABOUT IOTERRA

Our mission is to enable the creation of a smarter, more connected world.

We are an IoT marketplace consisting of development resources, vetted service professionals, and a mass collection of building block solutions to incorporate into your IoT initiatives.

www.ioterra.com

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