Ben Stibal

Industrial Designer

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Education

Purdue University, B.A. Industrial Design
West Lafayette IN, 08/2013-05/2017

Experience

Zebra Technologies, Industrial Designer
Long Island NY, 01/2018 - Present

Industrial designer working on Zebra's multidisciplinary design team to develop products and solutions in robotics, healthcare, warehouse, and retail categories. Lead projects from concept through to production and worked closely with engineering to deliver tooling-ready surfaces.

Huge Design, Industrial Design Intern
San Francisco CA, 07/2017 - 12/2017

Developed comprehensive design deliverables for a variety of startups and globally-recognized corporate clients through research, rapid CAD iteration, concept visualization, and prototyping on projects ranging from consumer electronics to soft goods, IOT, and architectural planning.

Blue Clover/Berry Global, Industrial Design Intern
Evansville IN, 05/2016 - 08/2016

Worked with the Blue Clover team to develop packaging design solutions for corporate customers, picking up knowledge on a wide variety of plastic production methods along the way. Assisted in brainstorming, design research, concept sketching, and rapid concept generation.

Skills

Concept ideation, computer modeling & surfacing (CAD), rendering & visualization, manufacturing and process knowledge, CMF specification, physical prototyping, sketching, research, design presentation.

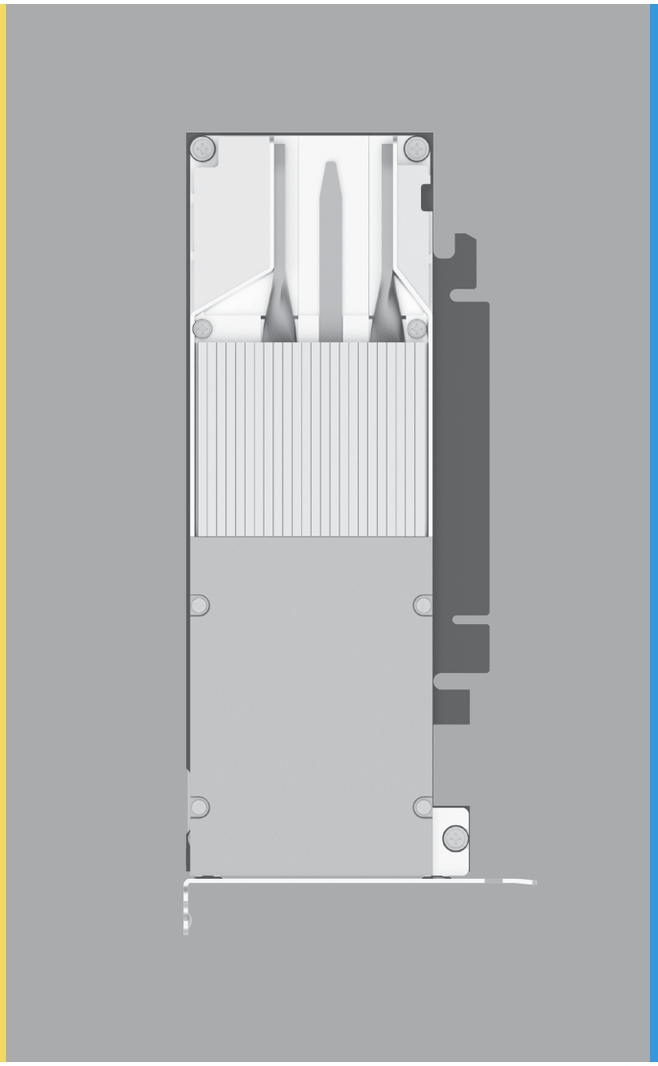
Software

Alias, Pro-E/Creo, Solidworks, Fusion 360, Keyshot, Sketchbook, Adobe Photoshop, Adobe Illustrator, Adobe InDesign, Adobe Premier, macOS and Windows fluent.

Patents

USD917486S1, 8 additional patents pending USPTO approval.

contents



respire

intel FPGA

Zebra MC9300 keypads

Zebra DS3600 KD

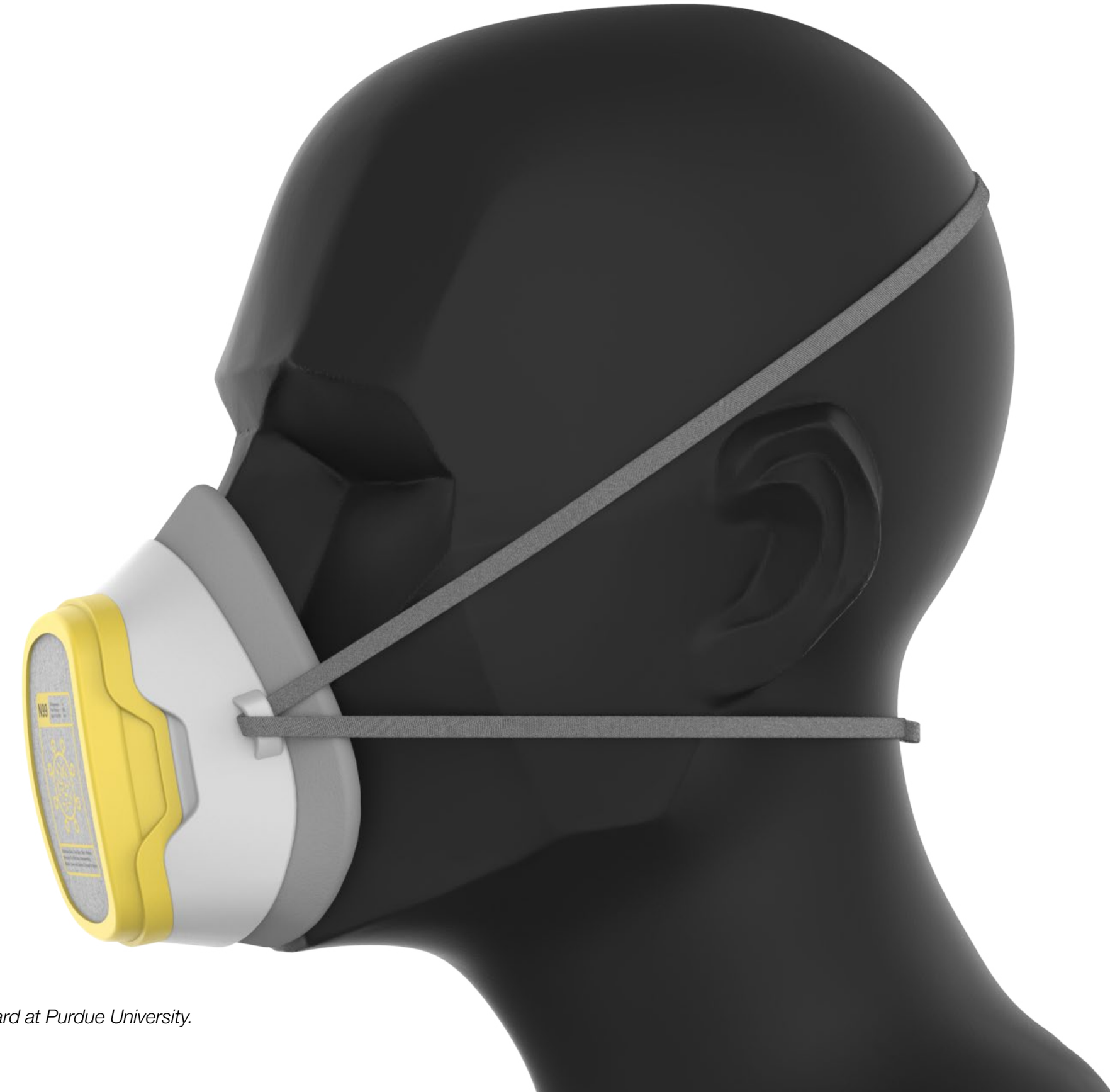
student work
2013-2017

professional work
2017-present

respire

respirator

Purdue University, 2017



the problem:

Respirators are great for protecting our lungs, but have a lot of potential for misuse and often aren't tailored for consumer use and understanding.

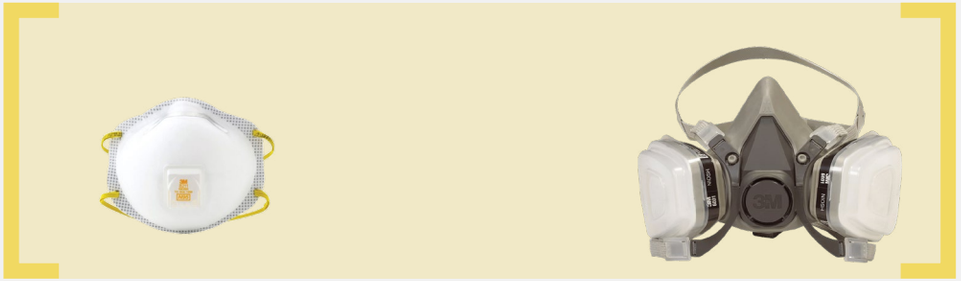
the solution:

Respire is meant to bring simplicity and comfort to the experience of using a respirator. By improving on the pain points of respirators and dust masks, Respire aims to make respirators more personal and customizable while increasing the frequency of use.

Respire won the 2017 Model Solution Sponsorship Award at Purdue University.

Problem Definition

Project Scope: *Household Products*



dust mask
market: consumer, industrial
use case: particulate & dust

respirator
market: consumer, industrial
use case: particulate, gases, and fumes

full-face respirator
market: industrial
use case: particulate, gases, and fumes

self-contained respirator
market: industrial, public safety
use case: supplied oxygen

Project Scenario: *Household Use Cases*

lawn, garden, & pollen

woodworking (dust)

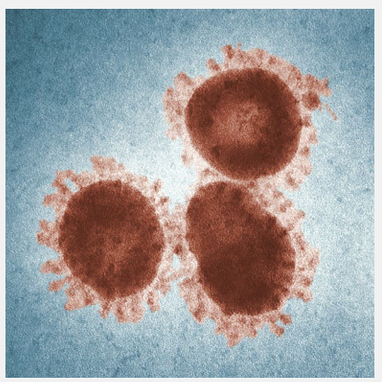
home renovation

painting, wood stain, & varnish

household cleaners

bleach & chlorinated cleaners

mold & mildew



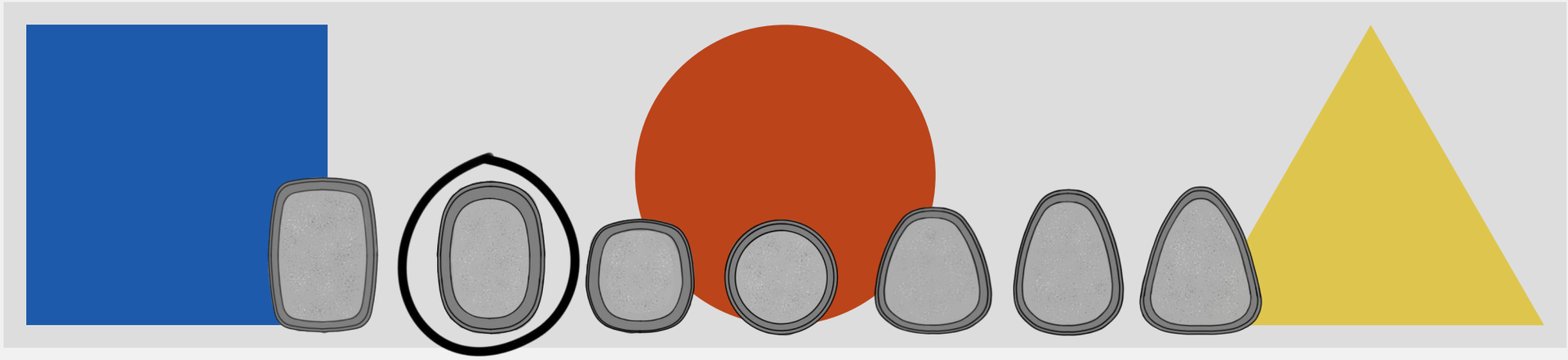
flu & virus

Form Development

Filter Shape:

By optimizing the filter shape for surface area, I was able to maximize the air throughput for the mask.

Rounding the filter side profile improves ergonomic hand feel and rigidity.

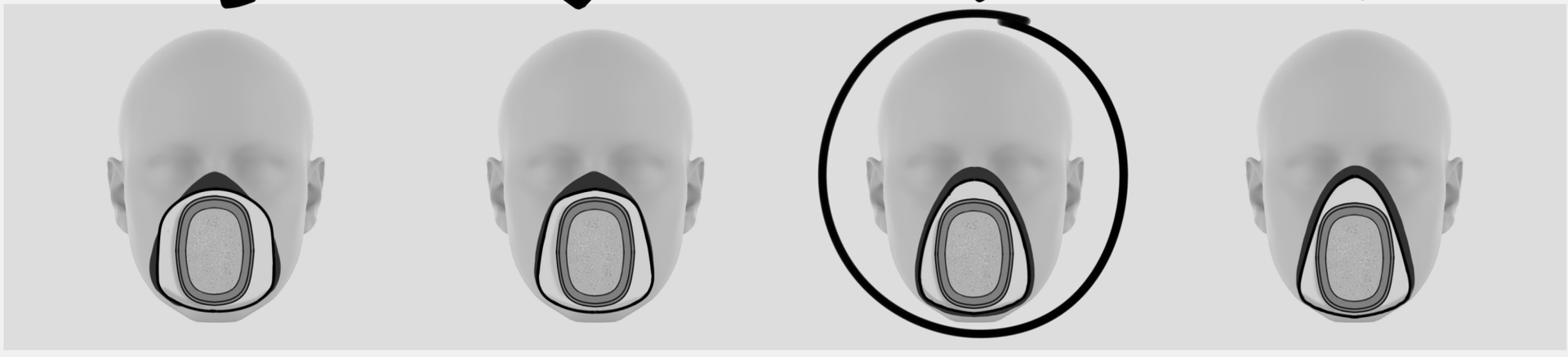


Surface Area Optimization	high	medium	low
Approachability	low	high	low

+

Mask Shape:

Propagating the preferred filter over varying mask shapes helped zero in on a design direction that looked friendly while fitting face physiology in a rationalized way.



Competitive Landscape:

Existing half-face respirator designs exhibit hard lines and sharp geometric shapes, often appearing clunky and industrial.

Scenario 1:

Woodworking:

The challenges woodworking poses for respiratory protection are relatively varied depending on the extent of the project being undertaken.

Protection Requirements:
- Dust, particulate- 10-30 micron, N95
- Paint, vapor, R95
- Varnish, vapor, R95
- Adhesives, Vapor, R95

By splitting respirator protection between two independent filters, specific use cases within the woodworking category can be more easliy met.

The N95 filter protects against general dust and particulate irritants.

The R95 filter protects against fumes and vapors from wood finishes.

When combined, these filters can offer improved dust protection while affording for vapors in a dynamic setting, allowing the customer to use what they need for their specific setting and use case.

Scenario 2:

Flood Damage and Cleaning:

The challenges of flood cleanup and repairs can expose the user to a litany of diverse pollutants and irritants.

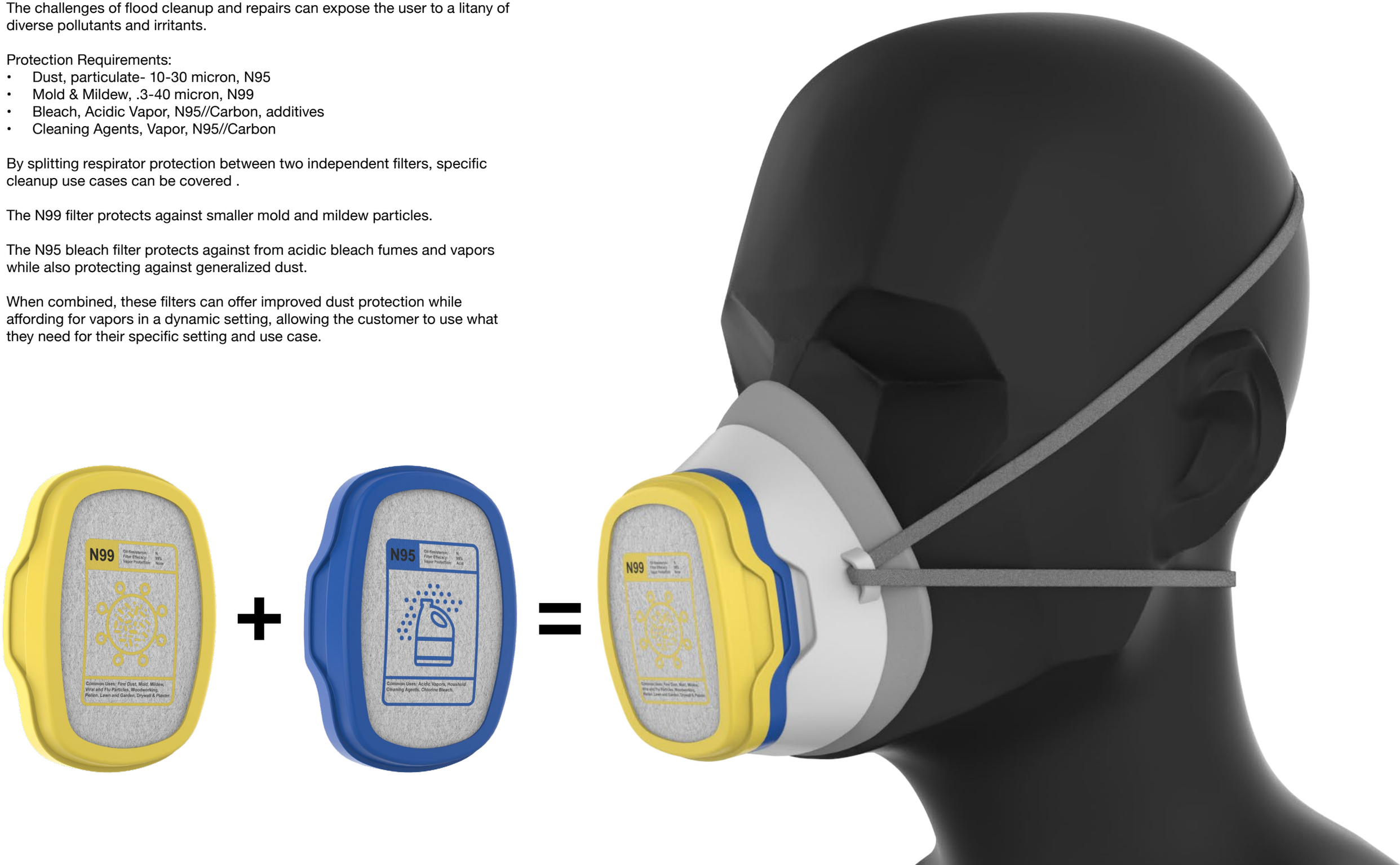
Protection Requirements:
- Dust, particulate- 10-30 micron, N95
- Mold & Mildew, .3-40 micron, N99
- Bleach, Acidic Vapor, N95//Carbon, additives
- Cleaning Agents, Vapor, N95//Carbon

By splitting respirator protection between two independent filters, specific cleanup use cases can be covered .

The N99 filter protects against smaller mold and mildew particles.

The N95 bleach filter protects against from acidic bleach fumes and vapors while also protecting against generalized dust.

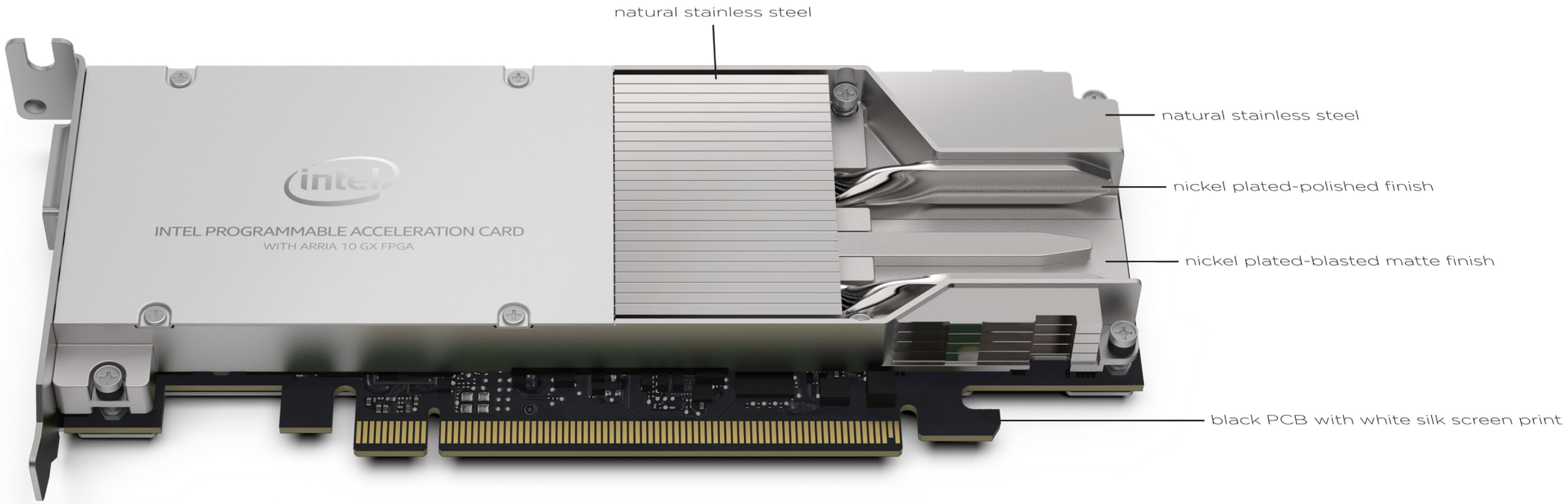
When combined, these filters can offer improved dust protection while affording for vapors in a dynamic setting, allowing the customer to use what they need for their specific setting and use case.



intel FPGA

cmf and visualization

Huge Design, 2017



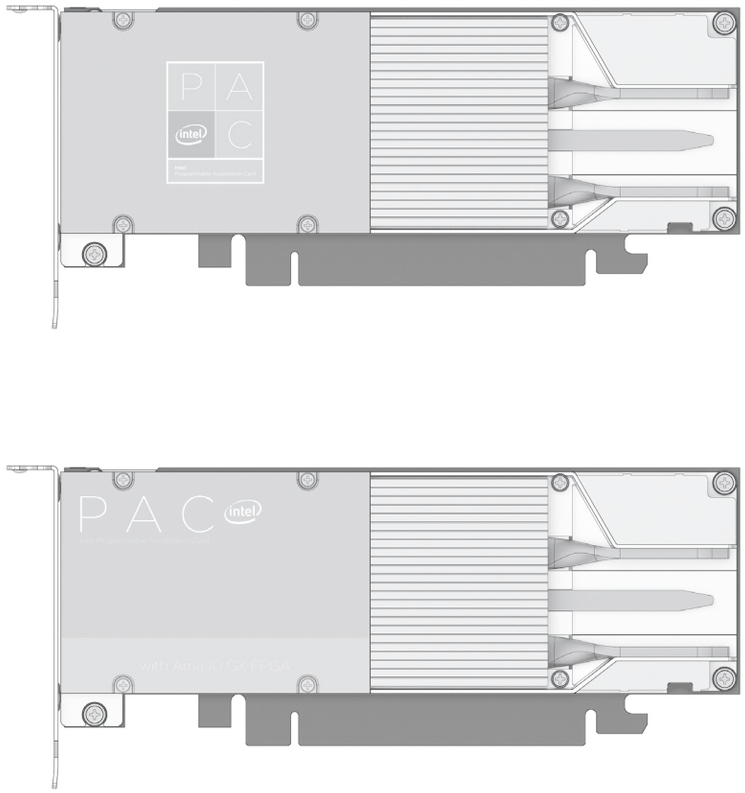
polished then annodized

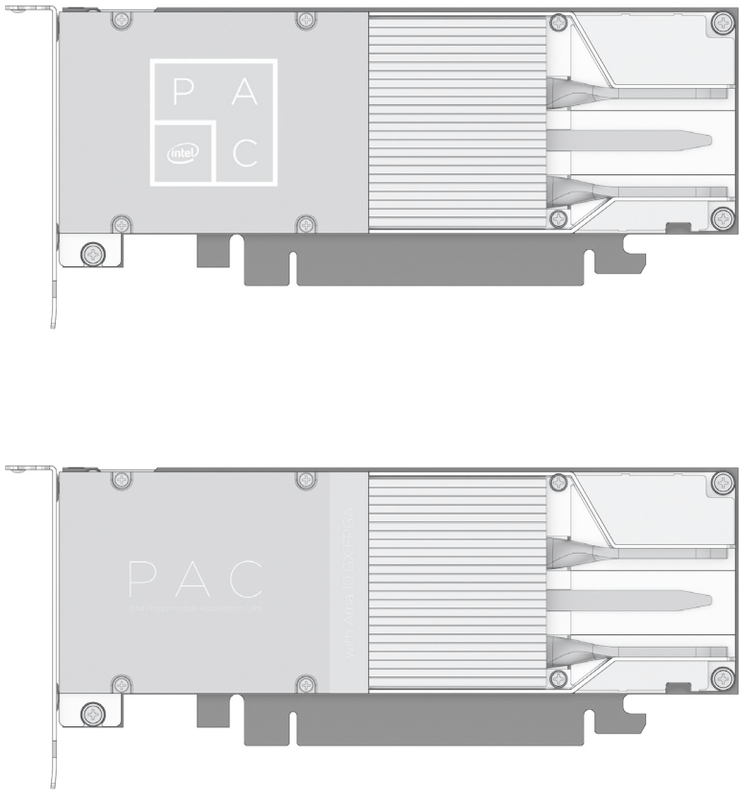
INTEL PROGRAMMABLE ACCELERATION CARD
WITH ARRIA 10 GX FPGA

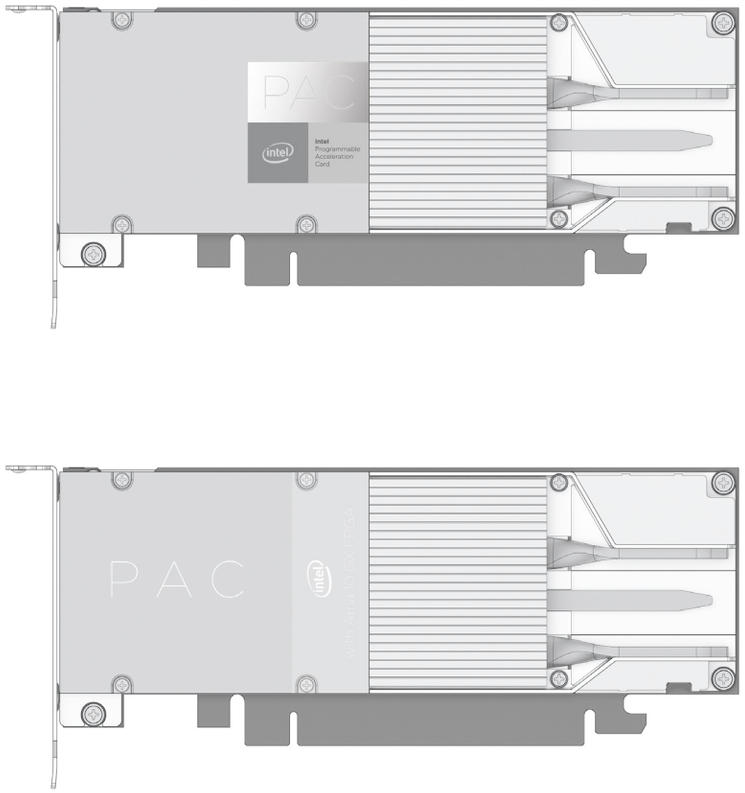
laser etched

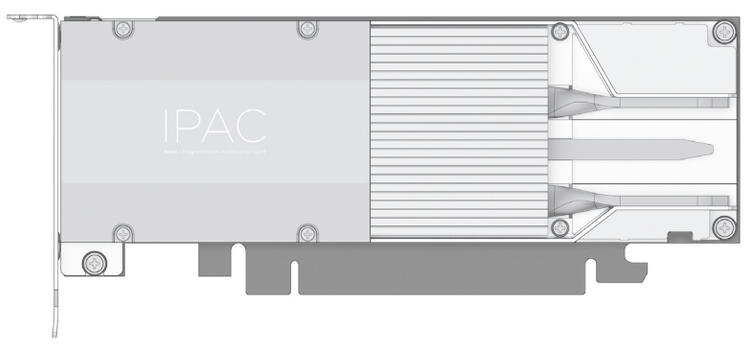
I worked with the Intel engineering team while at HUGE Design to develop a refined CMF appearance for the Rush Creek FPGA card.

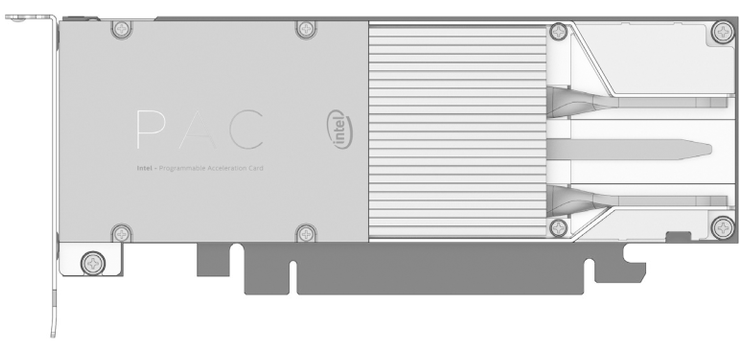
While mostly a sight unseen (and heavily constrained by airflow and thermals) we arrived at a result that boosted product family alignment, satisfied Intel, and create a stronger connection between packaging and product.

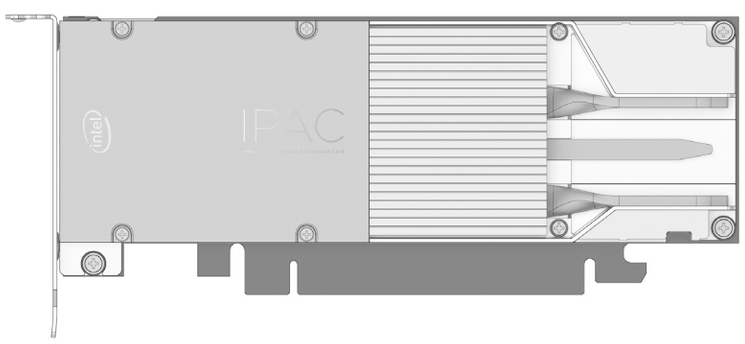












mc9300

modular keypads

Zebra Technologies, 2019

The Challenge:

To update, refactor, and redesign legacy keypad layouts to fit within a new form-factor that is 10mm shorter than its predecessor.

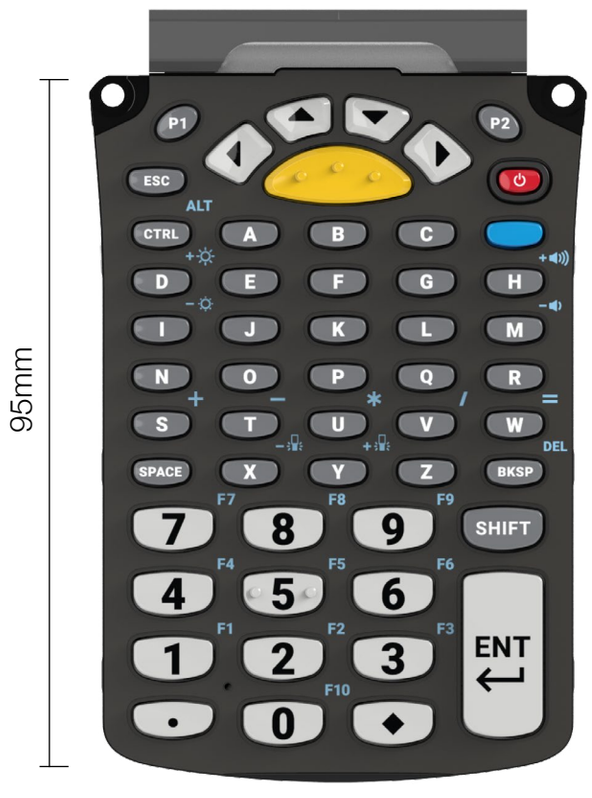
The Solution:

By increasing the halo around keys, we were able to improve user perception and confidence to mitigate reduced key size.

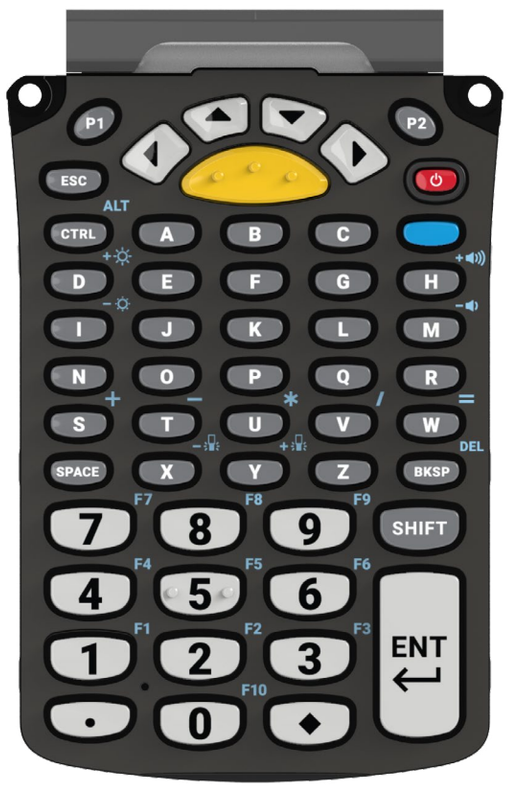
0.4mm overlay key offset

1mm overlay key offset

Legacy 53 Key
MC9000



Preliminary 53 Key
MC9300



Final 53 Key
MC9300

keyboard family

32 Key
Numeric/Calculation

35 Key
Numeric/Function

43 Key
Numeric/Function

53 Key
Alpha-Numeric Standard

58 Key
Alpha-Numeric

Patented, USD917486S

ds3600-kd

keypad design

Zebra Technologies, 2021

Preliminary

A

B

C

Final

Thank you.

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