



Design Thinking to Solve Real Problems during COVID-19: Remote Learning and Future of Work

Michelle Zimmerman
Brooklyn Jones

1 NO POVERTY



2 NO HUNGER



3 GOOD HEALTH



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 RENEWABLE ENERGY



8 GOOD JOBS AND ECONOMIC GROWTH



9 INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



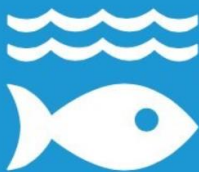
12 RESPONSIBLE CONSUMPTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE AND JUSTICE




17 PARTNERSHIPS FOR THE GOALS



THE GLOBAL GOALS
For Sustainable Development

3 GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages.

 Goal 3 in Action

 Explore the Targets



Empathize

Develop a deep understanding of the challenge

Clearly articulate the problem you want to solve

Define

Ideate

Brainstorm potential solutions; select and develop your solution

Design a prototype (or series of prototypes) to test all or part of your solution

Prototype

Engage in a continuous short-cycle innovation process to continually improve your design

Test

Problem: Re-integrating back into society after social distancing



EMPATHIZE:

People want to get back together with others, but do not want to spike the curve we have made progress flattening. Family gatherings, non-essential employment and schools want to meet in person, but fabric over our faces isn't enough as a make-shift short-term solution.

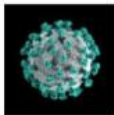
- COVID-19 has required social distancing.
- Local and global economies are being impacted because people are having to social distance
- Schools have closed
- Socializing and human interaction has been limited
- Personal Protective Equipment is limited and need to be reserved for medical professionals and first responders

Best solutions given for short term:

- self-quarantine
- social distance
- shelter in place
- stay home to stay healthy

Officials and immunologists want people to stay safe and flatten the curve.





Coronavirus Live Updates



THE CORONAVIRUS CRISIS

CDC Now Recommends Americans Consider Wearing Cloth Face Coverings In Public

April 3, 2020 - 5:49 PM ET



COLIN DWYER



ALLISON AUBREY



A pedestrian in a face mask crosses the Williamsburg Bridge in New York City last month. U.S. health authorities have announced they're changing the official recommendations on face masks, now urging people to wear them in public spaces to

The government is now recommending personal protection when people...

Bryan R. Smith/AFIP via Getty Images

VERIFY: Is there a fabric that can kill coronavirus?

Yes, based on early research, there is a fabric with properties that can kill the coronavirus. But don't expect it at the store around the corner.

Indianapolis MONTHLY

IU Researchers Identify Fabric That Kills Coronaviruses

IU researchers have demonstrated that a fabric with an electric field kills coronaviruses—and their discovery could revolutionize the future of personal protective equipment.

David S. Lee

It sounds like science fiction.

A fabric that smothered coronaviruses in less than a minute, its electrokinetic superpowers choking the life out of COVID-19 like Thanos squeezing the life out of Loki?

It's real, says Chandan Sen, the director of the Indiana Center for Regenerative Medicine and Engineering at the Indiana University School of Medicine in Indianapolis. And, with the number of novel coronavirus infections sitting at 4 million as of May 10, it holds tantalizing potential for the future of personal protective equipment.

He and a team of IU researchers discovered earlier this year that the novel coronavirus relies on electrostatic forces for its ability to infect. So if they could find a metaphorical kryptonite that could disrupt those forces...

The possibilities were electrifying.

Then, in a study published May 13 in ChemRxiv, a site that houses chemistry research prior to publication, Sen and his team told the world: They'd done it. They'd discovered that an electrocatalytic fabric made of polyaniline fabric printed with alternating circular metal dots of elemental silver and tiny metals sent the virus's electrostatic



The electrocatalytic technology offers clinicians a non-antibiotic solution for infection risk reduction and potentially increases its value for use in face masks and possibly other surface treatments.

More Videos

Yes, based on early research, there is a fabric with properties that can kill the coronavirus. But...

Wearable technologies for personal protective equipment

J. Decaens, O. Vermeersch, in *Smart Textiles and their Applications*, 2016

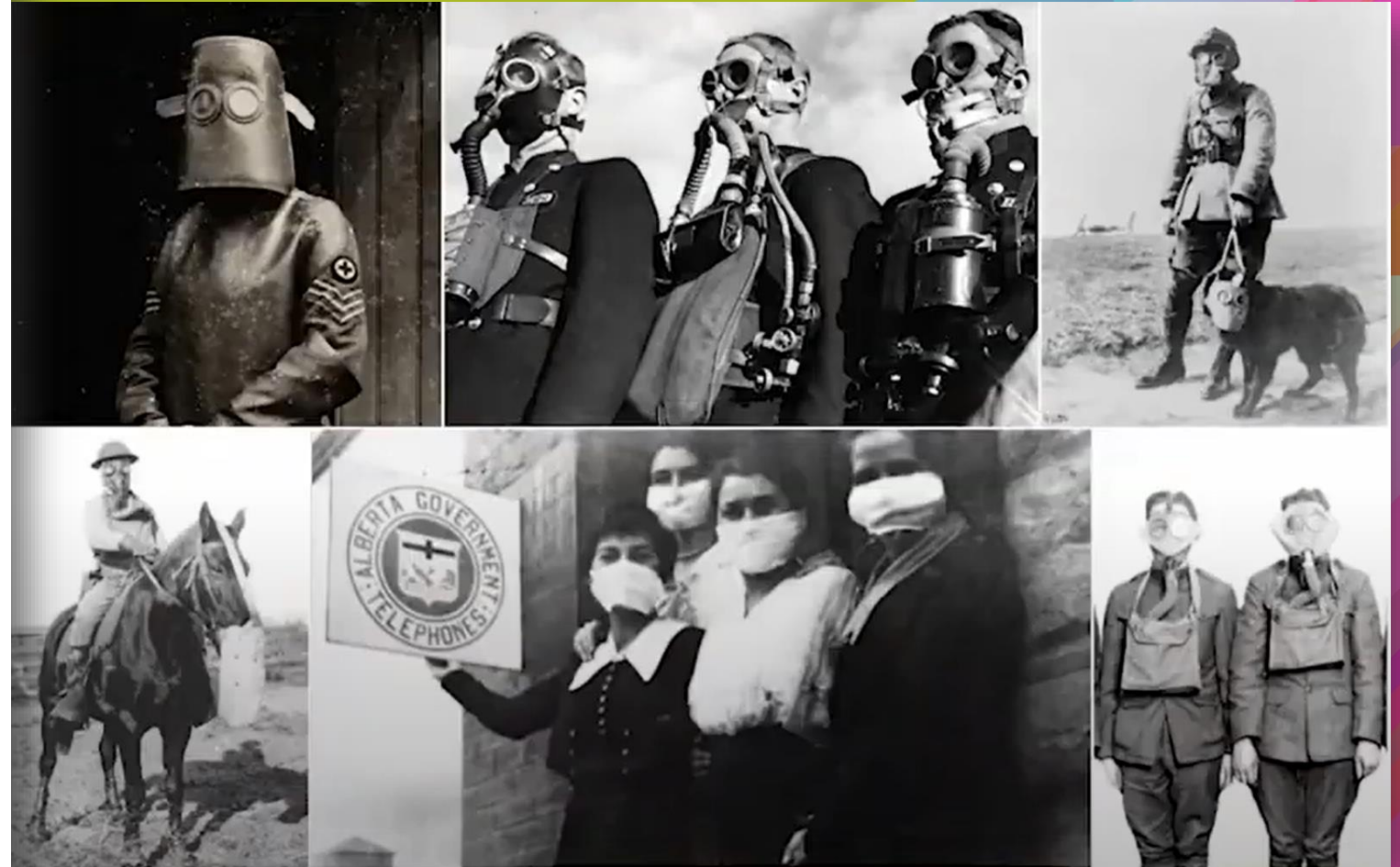
23.1 Introduction

Personal protective equipment (PPE) refers to specialized garments or accessories such as clothing, helmets, gloves and so forth that fulfil a protective function against various hazards, mechanical or chemical, when worn by workers. Fit and comfort are essential when choosing a PPE since it will impact the protective performance as well as the mobility of the wearer who may expose himself to higher hazards by tripping or falling. PPE can be classified into different categories depending on the body areas that require protection (Brauer, 2006):

- Eye and face
- Head
- Foot and leg
- Hand and arm
- Body
- Hearing

23.1.1 The need for wearable devices in PPE

High-risk situations that involve wearing PPE are often a source of stress for the workers who are subject to dramatic increases in temperature, heart rate and respiratory rate. Therefore, it is necessary to monitor their physiological signs in order to avoid accidents and to be able to alert co-workers. In addition, the adrenaline rush has also as a consequence to trick the wearer's senses regarding the exterior environment. It has been reported (Kantor and Brown, 1996) that many firemen suffer from burns after exposing themselves for an extended period to high temperature without feeling the heat. This example raises concerns about the awareness of the wearer regarding his surroundings and demonstrates the need for PPE to be equipped with temperature and *humidity sensors*. Ideally, the PPE should be able to monitor itself as well and detect any failure to fulfil its



Create clothing that would protect you and allow you to integrate back into society without posing a risk of spreading the virus to others or catching a virus from others.

Fashion Design Criteria and Considerations

- ☐ Create a minimum of 4 styles as thumbnails that are created for a specific demographic
- ☐ Choose at least one to develop more fully
- ☐ You may use digital ink, or paper
- ☐ Be able to identify the research that supports the scientific and technological features of your design that protect your demographic

IDEATE

Here are examples of 4 styles as thumbnails



Who is your demographic (who will wear your designs)?

- Infants/children
- Pets
- Teens
- Young adults
- Students for attending school
- Accessibility - wheel chairs, hearing support, low or no vision
- Adults shopping
- Adults working in public with people
- Adults working in public construction
- Adults working in public sports
- Adults exercising in public
- Adults working with childcare or schools
- Adults healthcare
- Adults food service industry (restaurants/grocery stores)
- Adults working in public research and industry

What conditions may the fashion be worn in to protect the wearer

- Will there be smart technologies connected to the fashion to decrease barriers for work?
Fit bit/Apple watch/blood pressure/heart rate/COVID-19 detector/Thermometer/Temperature other wearable technologies or smart fabrics?
- Outdoors
- Indoors
- Weather protection (sun, water, wind)
- What closures will be used to get in and out of garments?
- What considerations are taken for breaks for eating/restroom?

What research do you have to support the science and/or technology that makes your design safe and protective of the wearer and those around them?

- What materials will be proposed for construction?
- What scientific sources did you use to support your design and how did they influence your design (hint: see the Science Direct section of the Sway to get started)?

Design Thinking and STEAM

- What concept test or opinions did you gather in re-design phases?
- See examples of resources for science and tech in textiles and wearables in the Sway collection below
- How would your designs/prototypes/pitch be presented to your intended audience (designer/general public/policymakers who make decisions on social re-integration)



Watch this 5 minute video on Ruth Carter, the Designer for the Black Panther Costumes on how to design and she talks...

BROOKLYN YAEL JONES

SKILLS

- Empathetic
- Great with analyzing people
- Team player
- Observant
- Good conversational skills

EXPERIENCE

Student Speaker | NCCE | 2020 March 4th-6th

Spoke at two NCCE conferences

Dog-sitting | My House | 2019-2020

Took care of two rambunctious dogs and nurtured them into calm and loving canines.

Other Experience

My mother has worked in HR for over two decades

EDUCATION

Active Student | 2018- | Renton Prep Christian School

Past Student | 2017-2018 | Five Oaks Middle School

Past Student | 2016-2017 | McKinley Elementary
Attendance Award Fall Trimester
Attendance Award Spring Trimester

President's Award for Educational Excellence

Past Student | 2015-2016 | Sierra Heights Elementary School

Past Student | 2014-2015 | Madrona Elementary School

Past Student | 2012-2014 | Sheridan Elementary

INTERESTS

- Avid reader and writer
- Piano
- Singing
- Recently: writing piano compositions



brooklyn.jones
@students.agcs
chool.org



206-111-0000



Unavailable



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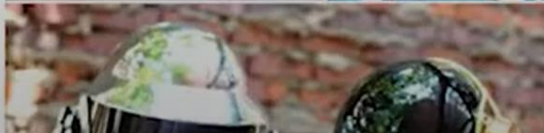
VOLUNTEER EXPERIENCE

Volunteered a minimum of 5 hours

- NCCE
- Meal Packing for children in Sierra Leone
- Seattle Goodwill
- Northwest African American Museum | Martin Luther King Day

IT	Marketing	Fashion Design	Materials	Risk	Manufacturing	HR	Project Management	Law
Josh	Eden	Ayaka	Charisse	Nathanael	Sam	Brooklyn	David	Brandon
Gabe	Melay	Halle	Isaac		Krish		Sophia	Toby
Alden	Kush	Jonathan						
	Sharice	Madison						
	Mikylla	Ryan						

Sci-Fi and Pop Culture

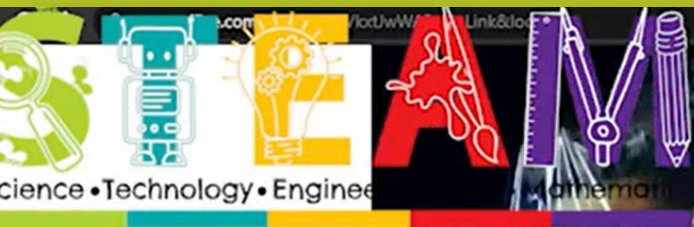


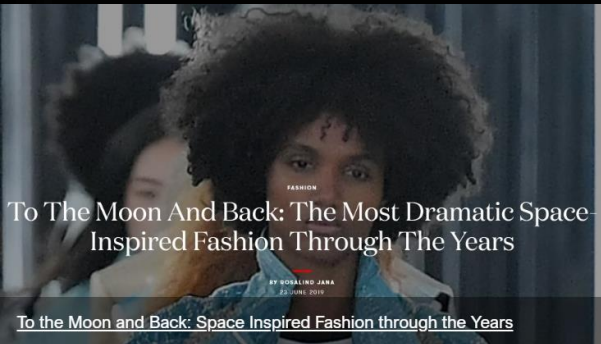


A **hazmat suit** (hazardous materials **suit**), also known as decontamination **suit**, is a piece of personal protective equipment that consists of an impermeable whole-body garment worn as protection against hazardous materials. Such **suits** are often combined with self-contained breathing apparatus (SCBA) to ensure a supply of breathable air. Aug 13 2019

[Hazmat suit - Wikipedia](https://en.wikipedia.org/wiki/Hazmat_suit)
en.wikipedia.org/wiki/Hazmat_suit







To The Moon And Back: The Most Dramatic Space-Inspired Fashion Through The Years

To the Moon and Back: Space Inspired Fashion through the Years



97 Similar Photos →

The Latest QIAODAN Menswear Collection is Disease-Proof

Jana Pijak — October 31, 2014 — Fashion
References: qiaodan & jackinmouses

Hazmat suit fashions are often associated with infectious diseases, nuclear disasters and narcotics but have recently become a staple on international runways. With the global Ebola scare, designers are turning the unfortunate crisis into an opportunity for self expression. In the case of designer Yin Peng, his latest collection for QIAODAN does just that.

The label's Spring/Summer 2015 range was presented during Mercedes-Benz Fashion Week in China and stunned audience members with its hazmat suit fashions that were both apocalyptic and edgy in their aesthetic.

Models took to the stage in gas masks and sparty ensembles that were reminiscent of the ensembles worn by Breaking Bad's Jesse Pinkman. The collection's institutional ensembles were displayed in a neutral palette and featured unconventional material combinations.

Hazmat Suit Fashion for Men 2014



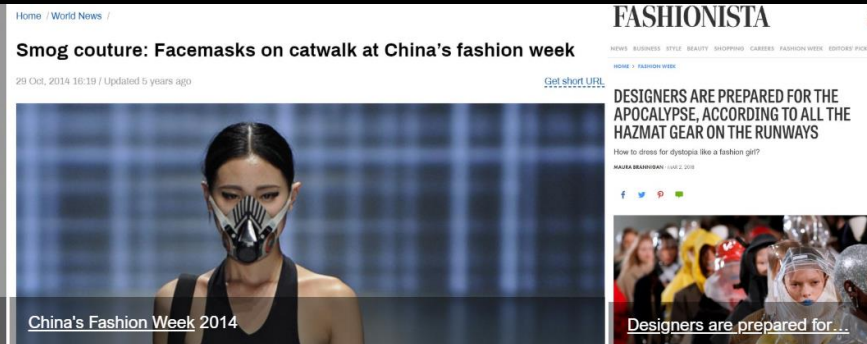
ScienceDirect

Personal Protective Equipment

Personal protective equipment (PPE) is a device or clothing worn by workers to reduce their exposure to potentially hazardous agents.

From: *Assessing Nanoparticle Risks to Human Health (Second Edition)*, 2016

Science, Textiles and Personal Protective Equipment



China's Fashion Week 2014

FASHIONISTA

HOME BUSINESS STYLE BEAUTY SHOPPING CAREERS FASHION WEEK EDITORIAL PICKS

HOME > FASHION WEEK

DESIGNERS ARE PREPARED FOR THE APOCALYPSE, ACCORDING TO ALL THE HAZMAT GEAR ON THE RUNWAYS

How to dress for dystopia like a fashion girl?

HAUKA BRADSHAW | MAY 2, 2015



Designers are prepared for...

VOGUE

Extreme Escapism: 15 Fall Runway Looks Are Better Than Microdosing

BY BROOK ROSE
March 23, 2021

N SERIES

Abstract

THE ART OF DESIGN

Abstract: The Art of Design

2017 | TV-14 | 2 Seasons | Docuseries

Step inside the minds of the most innovative designers in a variety of disciplines and learn how design impacts every aspect of life.

Abstract (Documentary): Ruth Carter - Costume Design

Smart Ring Startup Oura Enters New Era with a \$28 Million Series B Funding

University of Helsinki and MIT Researchers Develop Movement Suit, Smart Diaper for Remote Monitoring of Babies

Stanford MEDICINE News Center

FRONT PAGE ALL NEWS TOPICS MULTIMEDIA

Stanford Medicine scientists hope to use data from wearable devices to predict illness, including COVID-19

Researchers from Stanford Medicine and their collaborators aim to predict the onset of viral infection through data provided by wearable technology. What they need now are participants.

APR 14 2020

Stanford Medicine researchers and their collaborators, including Fabrizio and Scripps Research, are launching a new effort that aims to detect early signs of viral infection through data from smartwatches and other wearable devices.

By using wearable devices to measure things such as heart rate and skin temperature, which are known to elevate when the body is fighting off an infection, the team seeks to train a series of algorithms that indicates when your immune system is acting up.

Wearable technologies to predict COVID-19

Forbes

May 5, 2014, 10:20AM EDT

What Is The Future Of Fabric? These Smart Textiles Will Blow Your Mind

Rebecca Gaidis
Forbes Style File Contributor Group 31
Lifestyle 204

This article is more than 5 years old.

I recently had the pleasure of meeting with Rebecca Palles-Friedman, an adjunct associate professor at Pratt Institute as well as an author and researcher on smart textiles and wearable technologies. With a background in active sportswear design working as Design Director at Fila USA, Champion, and Nike's Starter Division, she really understands the meaning of function and how clothing is meant to work with our bodies, not just sit on top of them. When we think of clothing, we usually just think of it as something we wear to provide coverage, convey our sense of style and protect us from the environmental elements. But, the future of clothing as we know it is about to change in a big way, and smart textiles are paving the way for this change. My chat with Rebecca gave me some amazing insight into this industry, and what's about to come.

So, what exactly are smart textiles? Smart textiles are fabrics that have been developed with new technologies that provide added value to the wearer. Rebecca states that "what makes smart fabrics revolutionary is that they have the ability to do many things that traditional fabrics cannot, including communicate, transform, conduct energy and even grow."

Smart textiles can be broken into two different categories: Aesthetic and Performance

MarketWatch

Press Release

Global Smart Textiles for Wearable Technology Market 2020 - Industry Growth Demand, Top Players, Key Application, and Forecast to 2025

Published: April 4, 2020 at 12:22 p.m. ET

The MarketWatch News Department was not involved in the creation of the content.

Apr 04, 2020 (CDN Newswire via Comtex) — MarketsandResearch.biz has announced a report titled Global Smart Textiles for Wearable Technology Market 2020 by Manufacturers, Regions, Type and Application, Forecast to 2025 which offers you more creative solutions that combine our in-depth geographic experience, intimate sector knowledge and clear insights into how to create value in your business. The report studies remarkable features of the global Smart Textiles for Wearable Technology industry such as market size, ongoing trends, drivers, risks, opportunities, and major segments. The report covers product specification, production analysis, and technology, product type, considering key features such as gross, gross margin, revenue & cost. Market research is based on historical information and present market requirements.

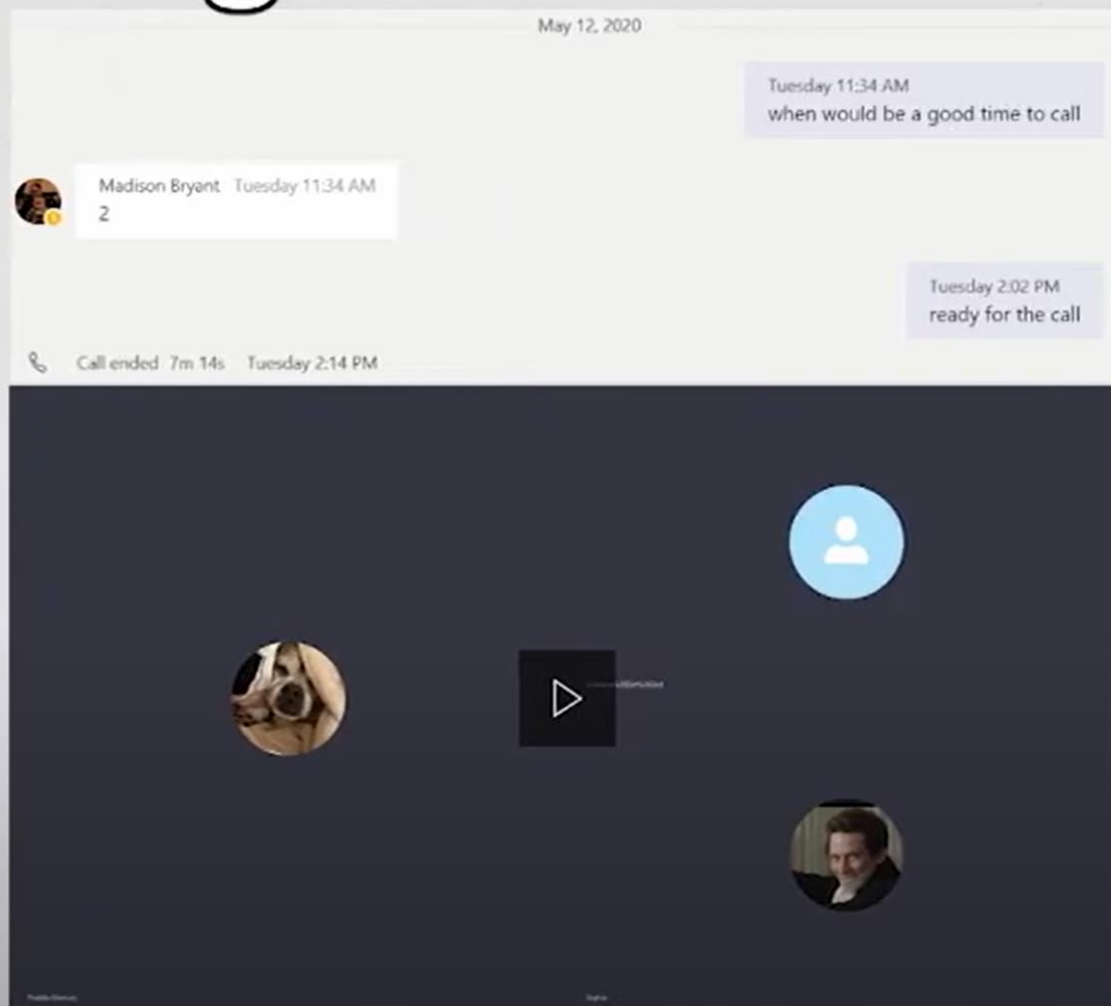
The vital manufacturers included in this report are: Google Inc, E.I. DuPont De Nemours, Milliken & Company, Intelligent Clothing Ltd, Interactive Wear AG, Ohmatex ApS, Outlast Technologies LLC, Yarn Innovations Inc, Miller Technology — A/Vista Medical Ltd, Textronics Inc, etc.

Smart Textiles and Wearable Technology Forecast for 2025

@mrzphd #ISTECCL

Project Management

Evidence of Calls



<https://web.microsoftstream.com/video/fb966394-e6c8-45dd-9378-b97089aff255>

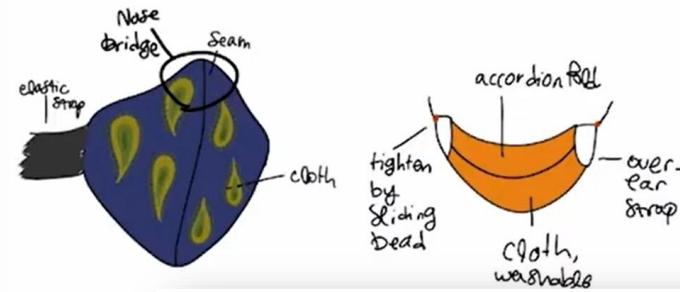
<https://web.microsoftstream.com/video/6f06ac03-7594-4f95-912b-32186309ccac>

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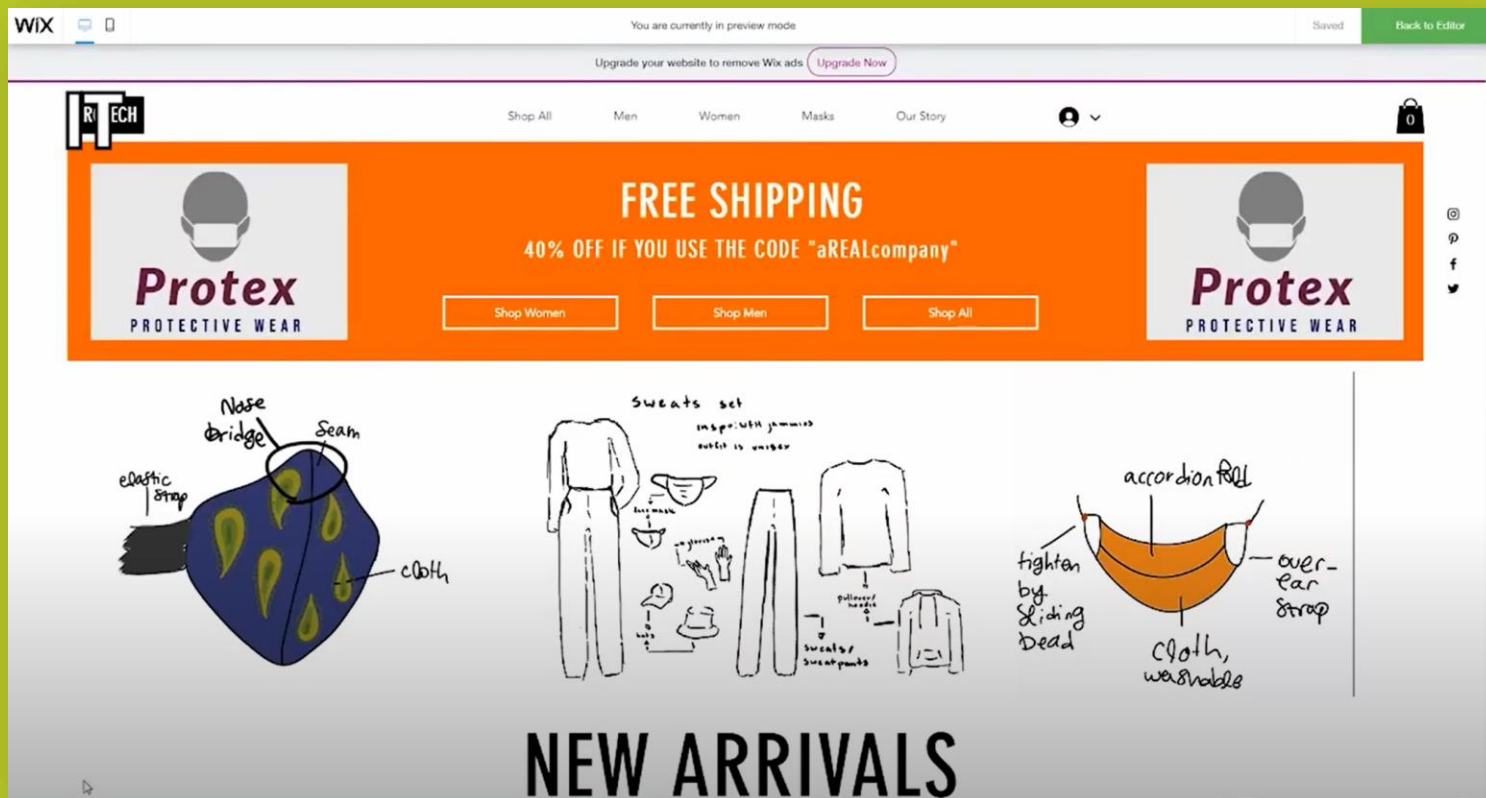
Fashion Design

Designs



Fashion Design and Sketch Tutorials





A-Accountable- Leader or person who is the main responsible

C- Consultant- Person you can consultant

I-Informed- Person you must inform and keep informed

If you want to talk to the project manager whose managing, you talk to the persons who has **A** for your group as they are your main manager.

Project Managers RACI

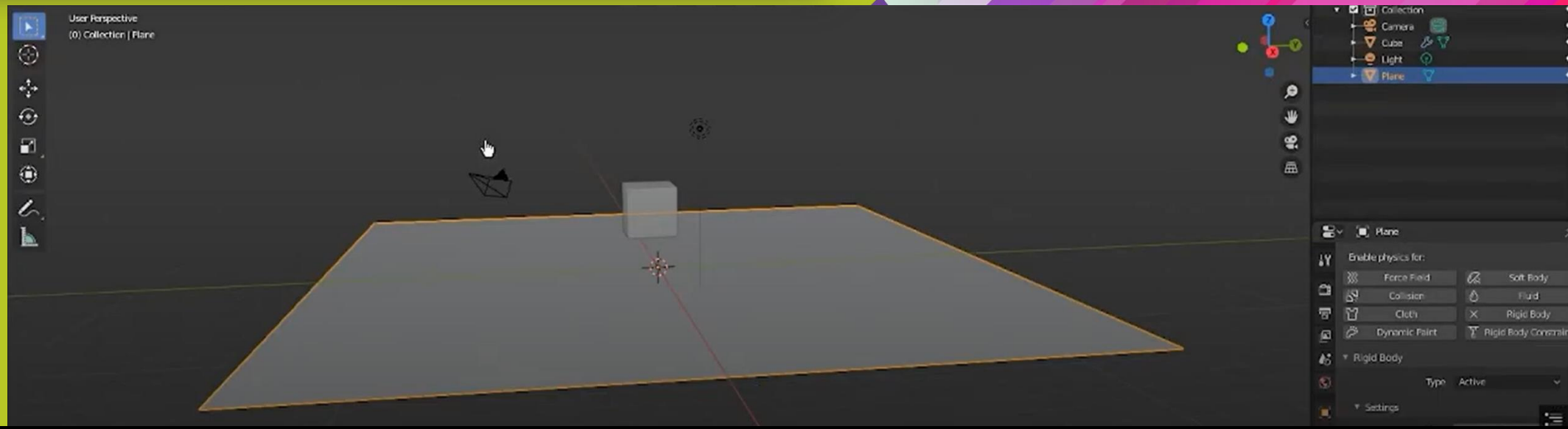
Task	David	Sophia	Nathanael
Overall project	RA	R	
Risk identification	CI	CI	RA
Risk Mitigation	RA	RA	CI
Marketing Team	RA	RCI	Null
Law	CI	RCI	Null
IT	RA	RCI	Null
Fashion Design	RCI	RA	Null
HR	CI	RCI	Null
Finance	RA	RA	Null
Manufacturing	RA	RCI	Null
Materials	RA	RCI	Null

Other Groups RACI

For project managers-

If you want to talk to specific team contact the person who is A for the desired team

Task	David	Sophia	Team/team leader
Marketing Team	RCI	I	Kush - Melay (RA)
Law	CI	RCI	Brandon (RA)
IT	RCI	I	Alden (RA)
Fashion Design	CI	RCI	Halle (RA)
HR	CI	RCI	Brooklyn (RA)
Manufacturing	RCI	I	Sam and Krish (RA)
Materials	RCI	I	Charisse (RA)



Law

AutoSave On Contract Criteria A - Last Modified: June 2 Search Brandon Smith BS

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SIGNATURES This document needs to be signed. View Signatures...



***to demonstrate proficient or above: must have completed all tasks, did not rely on others to complete the tasks**

For complete explanation of achievement level descriptions please visit page 17 of the Employee (Student) Handbook

You will complete a self-assessment, that will then be forwarded to HR for review, and finally Michelle Zimmerman and Chris Nearman will determine your final performance review

Exemplary	Assignment turned in on time	Never been reminded or warned	Doing their job above and beyond.	Communicating always/ initiating conversation
Mastery	Assignment turned in on time	Never been reminded or warned	Doing job Well and taking initiative	Communicating often
Proficient	Assignment turned in on time	1 reminder or warning	Job done well with some room for improvement	Responding to discussion questions/responding in a timely manner
Developing	Assignment turned in on time	1 to 2 reminders warnings	Job not done to full capability	Only contributing to oral/written discussion once or twice a week
Unsatisfactory	Assignment turned in late	More than 3 reminders/warnings	Someone else forced to do job once or twice	Rarely communicating
Insufficient	Assignment not turned in	More than 5 reminders/warnings	Someone else is forced to do job	Not responding or acknowledging messages sent

Below is an electronic signature line. To sign double click the line to open the dialog box.

X  X 

Brooklyn Jones
Human Resource Generalist

Brandon Smith
Legal Representative

5/28| Thursday **First Call 12:00pm**- Call with Ms. Michelle, Sophia Sta. Rosa (Project Manager), Nathanael Cooper (Risk, Consultant)

About:

Grading Criteria, Project concerns

5/28| Thursday **Second Call 2:13pm**- Call with Materials, Marketing, Manufacturing, Project Managers, Risk, and Law

About:

Team concerns, various issues, problems with communication

5/28| Thursday **Third Call 3:00pm**- Call with all of company

About:

Project Criteria, Criteria Concerns and thoughts

5/29| Friday **2:23**- Call with Materials, Project Managers, Ms. Michelle, Risk, Law

About:

Project concerns, lack of communication, confronting slacking teammates

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each team stays productive and has no arguments. I'll be working with law on making sure that being done in the company is legal and legit. I'll be working with risk on making sure that no one is being harmful to themselves or others. I will be monitoring the productivity of each team as well as how well they follow the policies and guidelines set.

Procedures/Policies/Processes

that I've worked on

Exemplary	Assignment turned in on time	Never been reminded or warned	Doing their job above and beyond.	Communicating always/ initiating conversation
Mastery	Assignment turned in on time	Never been reminded or	Doing job Well and taking initiative	Communicating often

- Making Microsoft Teams the main platform for communication during the project
- Coming up with grading criteria for the project
- Helping to decide on disciplinary actions

someone else. Is there a set procedure for people not meeting their goals? What if people choose not to work together with another group for certain reasons?

5/18| Monday **Second Call 2:00pm**- Call with Materials, Project Managers, Law, Ms. Michelle

About:

Going through Social Reintegration Sway, clothing and fabric ideas

5/18| Monday **Third Call 5:33pm** - Call with Ms. Michelle, Sophia Sta. Rosa (Project Manager), Ayaka Pier (Fashion Design Team)

disciplinary action

0pm - Call with Law, Risk, and Project

action

2:34pm- Call with Sophia Sta. Rosa (Project

Sta. Rosa (Project Manager)

bb as HR

o Ryan Chiang and Jonathan Lee

ead, no response)

5/15 11:07 AM

Hey this is 'HR', I heard that you haven't responding much in your team chat. Your team mates would really appreciate it, even a simple "okay" or "yeah" will do.

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The Telegraph

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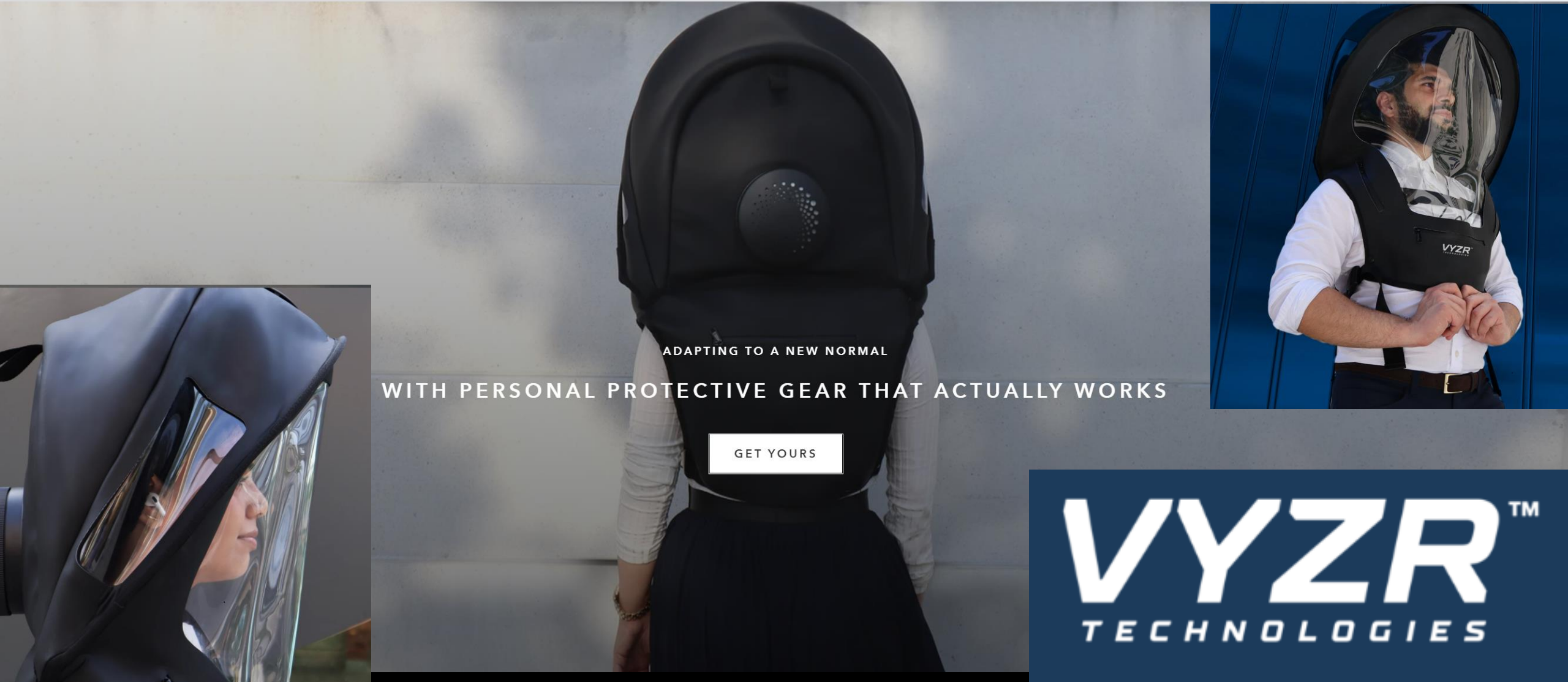
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TRENDS

INTERESTING
ENGINEERING

HYPEBEAST

Mashable

BUSINESS
INSIDER

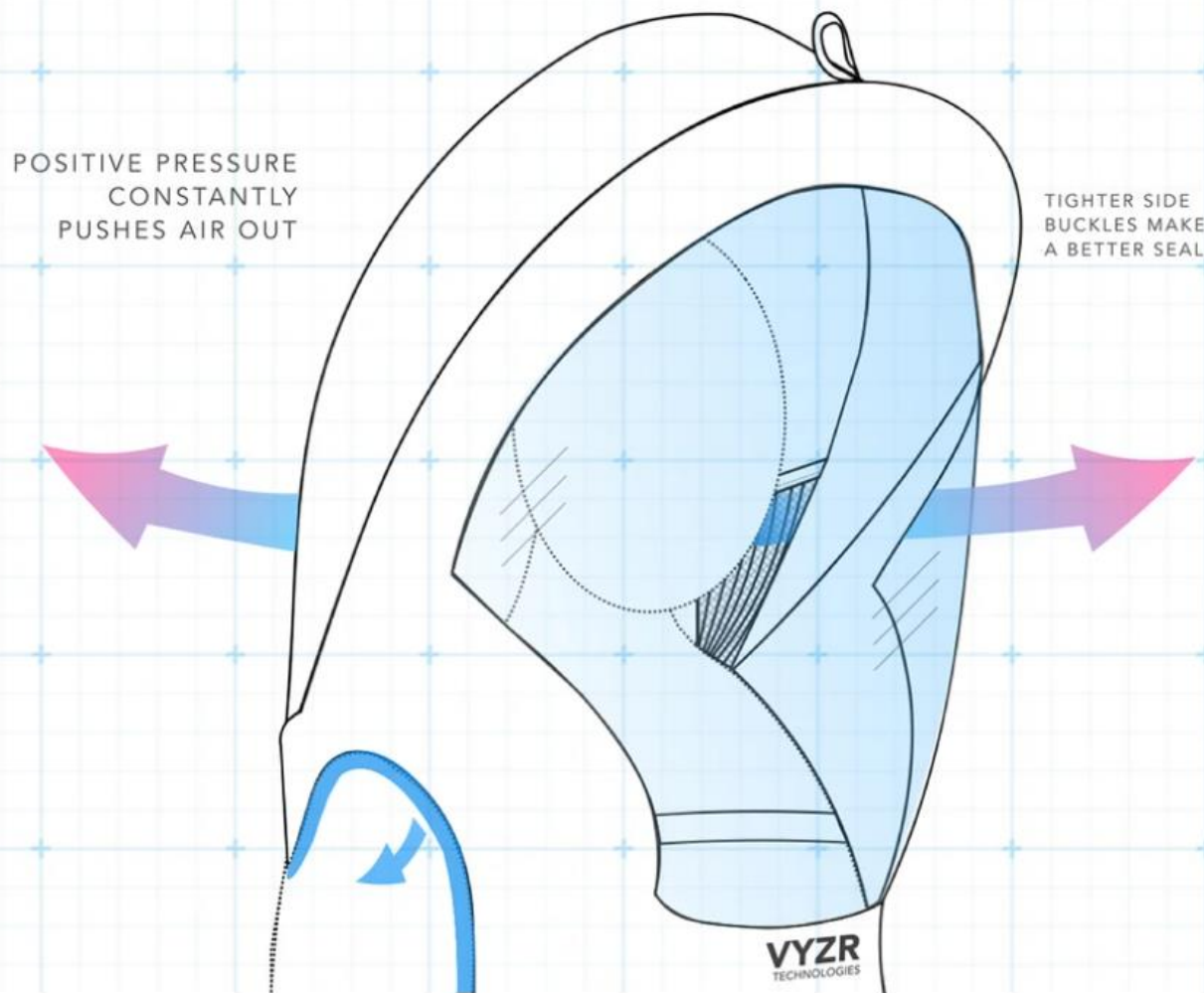


ADAPTING TO A NEW NORMAL

WITH PERSONAL PROTECTIVE GEAR THAT ACTUALLY WORKS

GET YOURS

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AIR SEAL

AIR FLOW

FILTRATION

TECHNOLOGY

AIR SEAL

A battery-powered motor fan pushes air into the BioVYZR, creating positive pressure inside the BioVYZR's hood. This positive pressure pushes out exhaled air from inside through two filtering air vents.

