FAMU-FSU College of Engineering

CIA Wearables

Team 505

10/17/2023

Malachi Johnson-Taylor

Team Introductions

Kartika Ahern
Systems Engineer

Maxwell Orovitz
Mechanical Design Engineer

Eliot Hamilton
Mechanical Design Engineer

Malachi Johnson-Taylor
Thermal Fluids Engineer

Patrick Molnar
Dynamics and Controls Engineer

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Sponsor and Advisor

Engineering Mentor
Shayne McConomy
Professor

Team Sponsor
Franklin Roberts
Central Intelligence Agency

Secondary Stake Holder
David Merrick
Director of FSU Emergency Management & Homeland Security Program

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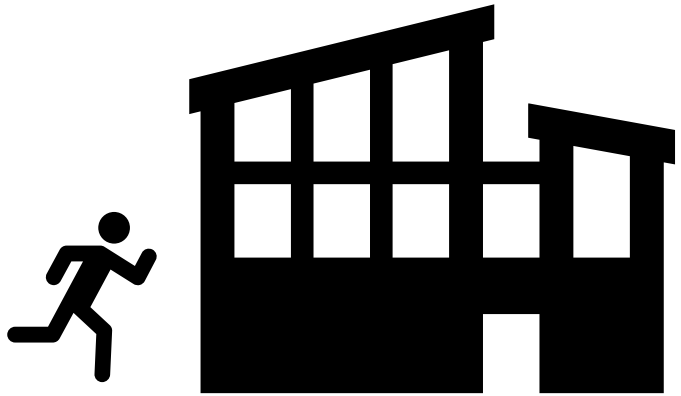
Objective

To develop an innovative wearable for the CIA, featuring an integrated gas detector, as well as additional technology to aid in building collapse search and rescue missions.



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Key Goals

Successfully collaborate to implement a gas sensor into our wearable technology

Improve operative safety and communication

Develop a reliable and fully functional prototype

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The device will not exceed 40 lbs.

The device will be worn for the entire search and rescue mission and not restrict movement.

Assumptions

The device will be used in a building collapse scenario.

The device can tolerate contact with hazardous gases and rubble.

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The device will have sufficient power to support continuous operation.

A communication infrastructure will be in place to support real-time data transmission.

Team 506 will recognize relevant gasses and calibrate their detector accordingly.

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Primary Market

Central Intelligence Agency

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Secondary Markets

American Red Cross

unicef

NATIONAL HIGH MAGNETIC FIELD LABORATORY

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Customer Needs

Long shelf life

Lightweight and comfortable but also durable

Supplies sufficient power

Assists in team communication

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Customer Needs

Focuses on accessibility

Reduces risk and improves user safety

Integration and sufficient testing

Captures the essence of the CIA

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Functional Decomposition

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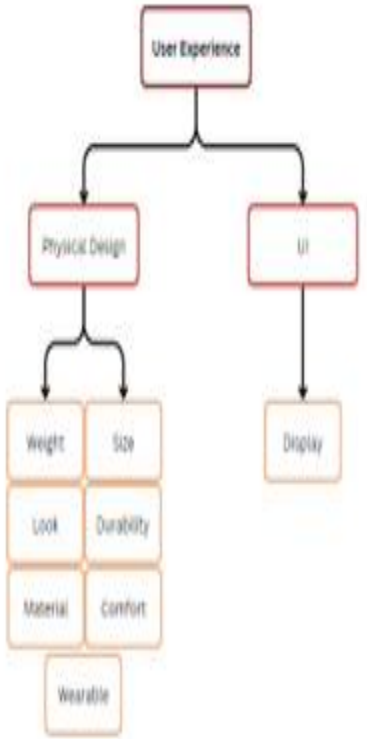

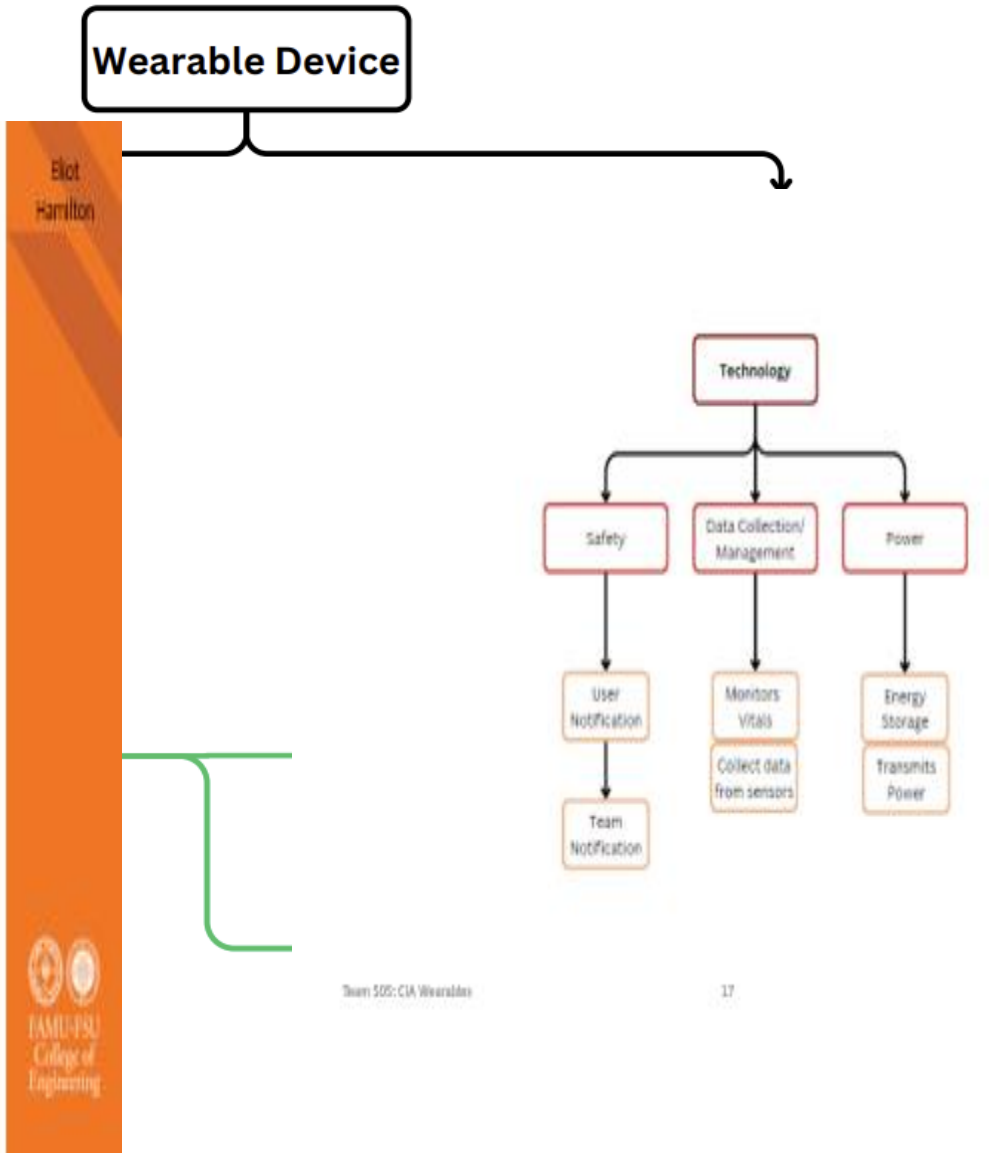

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Future Work

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Future Work

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Thank you from Team 505

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Backup Slides

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Cross-Functional Relationship Matrix

Functional Decomposition Cross-Functional Relationship Matrix					
Sub-Systems	Physical Design	User Interface	Safety	Data Collection/Management	Power
Weight	X		X		
Size	X		X		
Look	X				
Durability	X		X		
Material	X		X		
Comfort	X				
Wearable	X		X	X	X
Display		X	X	X	X
User Notification		X	X	X	
Team Notification		X	X	X	
Monitors Vitals		X	X	X	X
Collect Data from Sensors		X		X	
Energy Storage	X	X	X		X
Transmits				X	X

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