**DUNDALK INSTITUTE OF TECHNOLOGY**

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**Technical Documentation On**

**WRISTBAND AIR QUALITY MONITOR**

Project Carried Out

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**EXECUTIVE SUMMARY**

In the context of our Universal Design Project, we - the LifeSync team - embarked on an innovative journey that led to the birth of "Aerosense." Imagine a wristband that does more than tell time; it gives you a real-time snapshot of the air you breathe. With the surge of pollution in our cities, it`s high time we have something that keeps us informed. That's where Aerosense comes into play.

This isn't just about tech for the sake of tech. By leveraging the latest IoT, we've merged the handiness of everyday wearables with cutting-edge sensors that monitor air quality with finesse. It's all rooted in Universal Design's philosophy, aiming to make air quality data not just available but effortlessly integrated into our routines.

Dive into this report, and you'll discover the ins and outs of Aerosense's design, the strategies we employed, and the hurdles we overcame. For us at LifeSync, this wristband isn't just a gadget; it encapsulates our dedication to creating solutions that genuinely enrich our lives.

Table of Contents

[**GLOSSARY** 4](#_Toc149486125)

[**INTRODUCTION** 5](#_Toc149486126)

[Purpose 5](#_Toc149486127)

[Significance 5](#_Toc149486128)

## **GLOSSARY**

* Aerosense: The brand name of the air quality wristband.
* IoT: Internet of Things - Refers to the network of physical objects embedded with sensors, software, and other technologies to connect and exchange data with other devices over the Internet.
* API: Application Programming Interface - A set of tools and protocols that allow different software applications to communicate with each other.
* Asthma: A respiratory condition marked by spasms in the bronchi of the lungs, causing difficulty in breathing. It is often connected to allergic reactions or other forms of hypersensitivity.

## **INTRODUCTION**

### Purpose

In today's rapidly urbanizing world, the quality of air we breathe is a growing concern, particularly for vulnerable groups such as asthma sufferers. To address this challenge, we've initiated the development of the "Aerosense Wristband." This innovative wristband is specially designed to monitor air quality, catering specifically to those with asthma. With it, users can access immediate updates on the surrounding air quality, enabling them to make decisions that prioritize their health.

### Significance

The idea behind the Aerosense Wristband was not just to create a new tech gadget. There's a genuine, urgent need for such a device. Several research studies have shown a clear correlation between declining air quality and an increase in asthma-related issues. With the Aerosense Wristband, we aim to empower users with the knowledge they need to avoid potential asthma attacks, ensuring they're not caught off guard. On a broader scale, by collecting data from numerous Aerosense devices, we might be able to identify specific areas with high pollution levels, as well as detect patterns over time. This could prove invaluable for those in roles ranging from city planning to healthcare policy development.

As we worked on the Aerosense Wristband, we focused on integrating the latest air quality sensing technology while keeping the user interface simple and intuitive. We strived for a sleek design, making sure that whether you're a tech enthusiast or just someone looking for a solution, the device is easy to use. This report will delve deeper into our development process, discussing everything from our initial feasibility studies to the depth of data management.

To make this report as reader-friendly as possible, we've avoided unnecessary technical jargon. Where complex ideas arise, we've tried to simplify them with relatable analogies and, when needed, included diagrams for a clearer understanding.

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