People
This app is catered towards adults with respiratory sensitivities who live in environments where they may be exposed to triggers that can result in potentially dangerous flare-ups. They are aware of their specific sensitivities and they want to feel in control of their health without significantly altering their everyday routines. To do so, they will need to be able to manage triggers of chronic respiratory conditions daily.

Kumo will also be considerate of parents with children who have chronic or sensitive respiratory conditions or afflictions, and the general population who are more health-conscious.

Activities
Masks allow people with respiratory sensitivities to perform every day activities by protecting against inhaling airborne particles, which could otherwise provoke life-threatening symptoms in those with respiratory sensitivities. Masks are worn daily for long periods in cases where potential exposure to triggers is likely and must be replaced or washed after every use.

Though those vulnerable to respiratory crises are diligent about protection from airborne particles, not everyone is. Most basic masks only offer limited or one-way protection and cannot track or alert exposure. Kumo users can layer up to three filters to target specific particles and track their own—as well as any dependent's—daily exposure to environmental particles by location through the companion app. Simultaneously, databases connected to the Kumo app track hotspots of certain particles by location. Furthermore, users will be able to manage and regulate their lung health through contactless sensors that track the breathing rate. This data can be shared with third parties, such as healthcare providers, to improve respiratory health down the road.

Context
Potentially irritating airborne particles or triggers for respiratory flare-ups can be found anywhere and are particularly present in areas that are highly populous or industrial, such as cities and factories. Exposure can happen in everyday environments such as public transportation, the workplace, or school. The application aims to provide a sense of security for those who do not want to restrict their daily activities simply to avoid the risk of worsening symptoms.

Clarity and up-to-date information alleviate the mental stress of constantly worrying about potential exposure, providing a sense of independence and freedom. There is a generalization based on popular options (ex. N95) that masks are uncomfortable and fit poorly, rendering them ineffective. This discourages mask-wearing by the general population even though it can reduce the risk of exposure for vulnerable people and encourage health consciousness. Exposure concerns are amplified during the current COVID-19 pandemic, where people with respiratory challenges are especially susceptible and, masks are required in most shared spaces such as grocery stores to stop the spread.

Technologies
Kumo tracks individual (or dependents') daily exposure to environmental triggers using internal GPS sensors and external databases that provide up-to-date information on hotspots of specific airborne particles.

Users will be able to connect to the mask via Bluetooth with two quick taps on the power button after initially turning on the mask. A long press, until a vibration occurs, would activate a distress signal that contacts emergency services as well as your preferred emergency contacts. The app will contain visual and haptic notifications that inform the user of mask maintenance, battery levels, and dangerous pollution zones. Additionally, the user will be able to add and track family/friend device connections so others can stay updated on health status, as well as add their emergency contacts. Exposure data will be viewable in daily, weekly, and monthly intervals which can be shared with desired third parties such as a healthcare provider via external platforms i.e. email.

This app will be designed to consider privacy with One-Time Passwords or biometric scanning like touch/face ID. They will also have the ability to connect multiple devices and utilize accessibility functions such as font size and light/dark modes to ensure readability in diverse scenarios.