

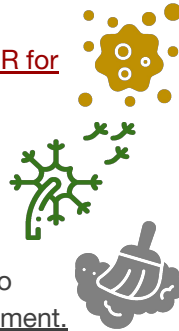
Particle Detector for Pediatric Patients with Allergy-Induced Asthma

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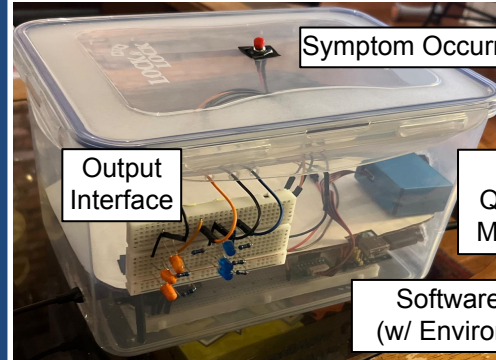
Need

Problem: Prevalence of unnecessary trips to the ER for preventable asthma exacerbations caused by dust, mold, and pollen.



Solution: Families need intuitive, actionable data to better inform asthma treatment.

Solution



Demo Video



Conclusion & Future

Was Our Device a Success?

- ☒ Met all functional requirements
- ☒ Innovation highlighted in binary visual output and symptom occurrence button

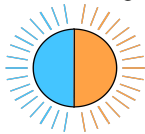
Future Iterations?

- ☒ More robust verification testing to assess accuracy.
- ☒ Particle Identification Feature
- ☒ Personalized Output Thresholds

Design Inputs



Detect Particles
2.5 to 10 μm



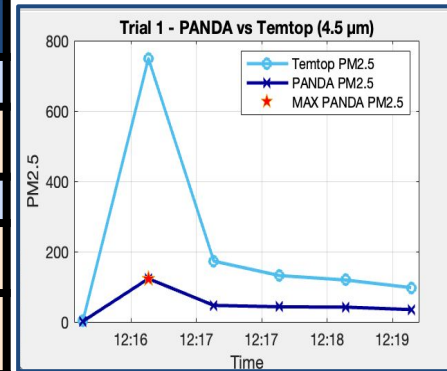
Binary Output
Blue = Normal
Orange = Take Action



Record Symptom Occurrence
Reports measured data when pressed

Verification Results

Verification Test	Result
Sampling Frequency (< 5min)	Pass
Symptom Recording Button	Partial Pass
Visual Output	Pass
Particle Sensitivity	Partial Pass
Environment Factors (Temperature + Humidity)	Partial Pass



While our device can detect and respond to changes in particle presence and environmental factors, we were unable to confirm that these readings were accurate using a calibrated reference tool (TemTop).