

# SMART AIR: INFORMING DRIVING BEHAVIOR THROUGH DYNAMIC AIR-QUALITY SENSING AND SMART MESSAGING

PI: K.E. Kelly, University of Utah  
IRG, 1952008

SmartAir



THE UNIVERSITY OF UTAH

## Project Challenge



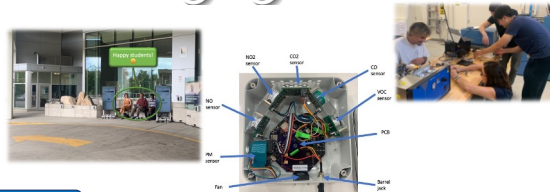
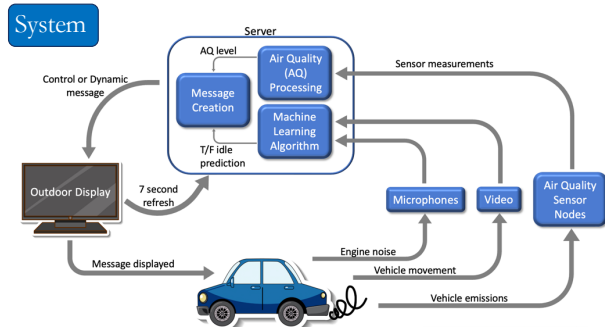
Concentrated vehicle idling causes microclimates of elevated pollution. Some people spend significant time in these microclimates.

## Intellectual Merit

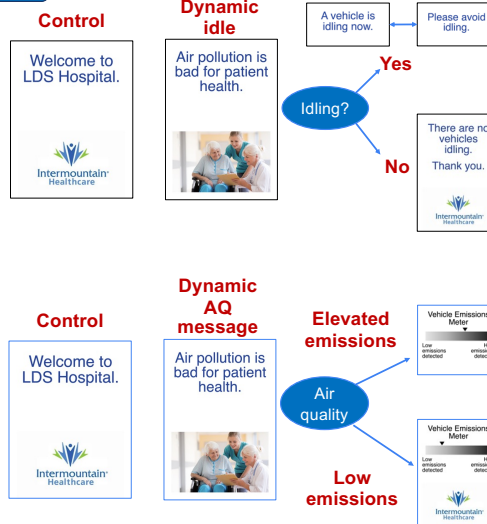
Leveraging dynamic feedback about idling and air quality together with community-crafted messaging to understand and influence individual decision making.



## Major Outcomes

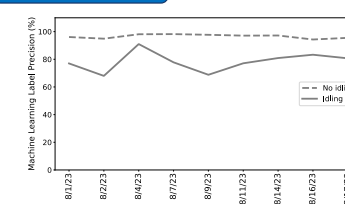


### Messages



## Major Outcomes

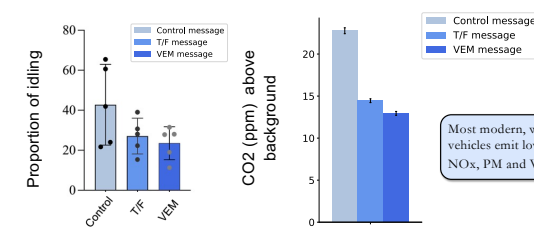
### Idle detection



Accuracy compared to human observations  
96.6% no idling  
78.3% idling

Reduction in the proportion of idling vehicles and ~40% reduction in CO<sub>2</sub> levels with dynamic messages

### Effect of messaging on air quality



T/F: true/false message  
VEM: vehicle emission meter message

Most modern, well functioning vehicles emit low levels of CO<sub>2</sub>, NO<sub>x</sub>, PM and VOCs

## Broader Impact

Dynamic feedback, coupled with community-crafted messages, that protects human health and is as ubiquitous as road-side speed displays

## Future Goals

- Analysis of messaging on the number of idling vehicles
- Field test at school drop off
- Publications and partner engagement