MICHIGAN STATE UNIVERSITY **Beta Presentation Data-Driven Mechanic: Applications and** Infrastructure The Capstone Experience Team Michigan State University CSE Andrew Brua **Erik Ralston** Kaela Burger **Jianyu Deng** Abhi Thirupathi

Department of Computer Science and Engineering Michigan State University

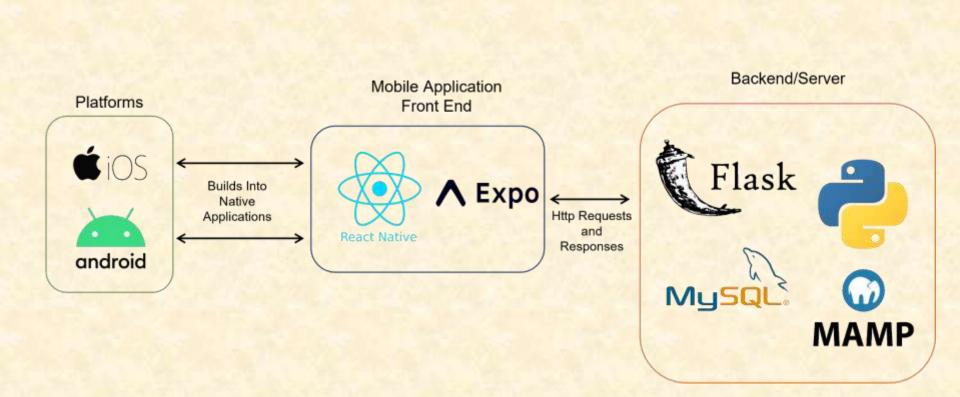
Spring 2022



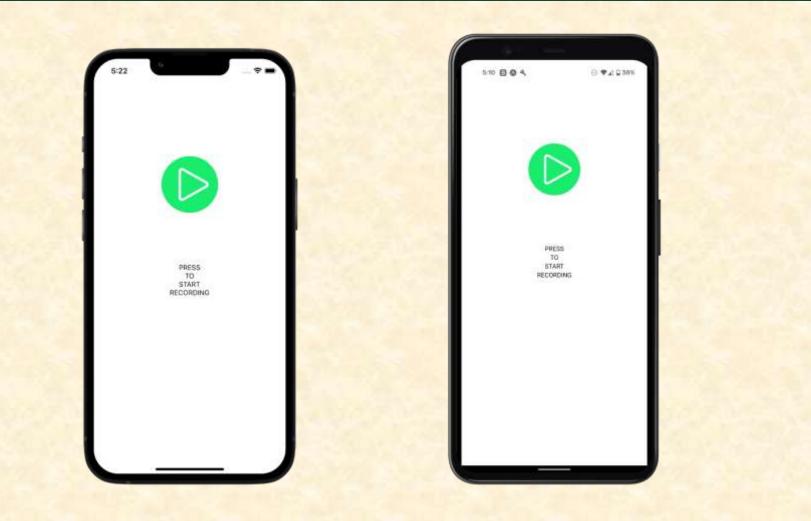
Project Overview

- Develop iOS and Android apps to collect audio and accelerometer data of vehicles for collection of data and classification
- Ability to annotate the collected data for training of algorithms
- Ability to classify the data using previous trained algorithms and display the results to users

System Architecture



Home Screen



Recording Screen



Annotate Screen

AN	ΙΝΟΤΑ	TE	1221	
7.17			1.11	
Make				
Toyota			1.27	
Model				
Corolla			100	
raanne				
Year			1951	
<u> </u>			1.10	
Known Iss			1.12.17	
Engine M	listire		2.27	
VIN (Opti	onal)			
~~~		Done	100	
	Century		1000	
	Corolla		1.5.61	
	Crown		1000	

ſ	ANNOTATE
	ANNOTATE
	Make
	Toyota =
	Model
	Corolla =
L	Year 2015
	Known Issues
	VIN (Optional)
	Next

# **Annotate Submitted Screen**

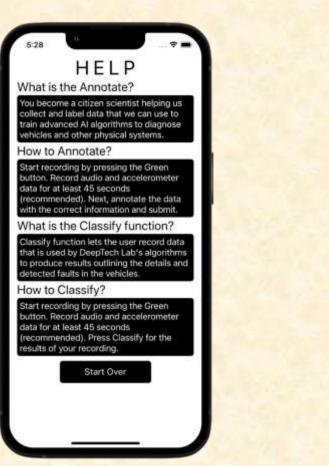


# **Classify Screen**

CLASSIFY	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
Information	1.25
Fuel: Gasoline	Sec. Sec.
Config: Inline	1000
Cyl: 4	
Turbo: Normally Aspirated	
Misfire: Normal	
Loc: Null	
Idle: Idle	
Make: Hyundai	
OEM: Mitsubishi	1.25
Disp-cls: 5.3	Sec. Sec.
Hp-cls: 395	1000
Start Over	
	2.52
	10 - 10 C (10)

	ČLASSIFY
In	formation
F	uel: Gasoline
C	Config: Inline
C	yi: 4
1	urbo: Normally Aspirated
Ν	lisfire: Normal
L	oc: Null
ł	fle: Idle
Ν	Aake; Hyundai
C	EM: Mitsubishi
	lisp-cls: 5.3
ŀ	lp-cls: 395
	Start Over

# Help Screen



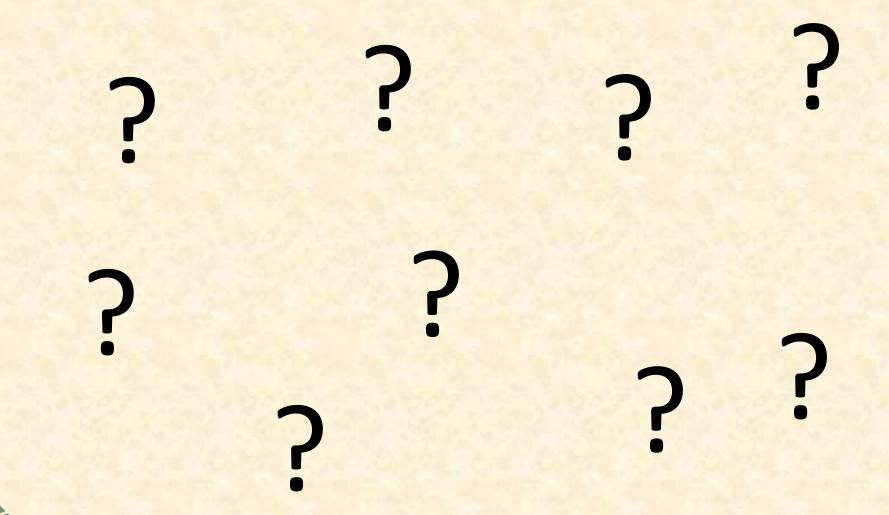
#### 8:04 🛙 🛛 ○ ♥ ₫ ₿ 45% HELP What is the Annotate? You become a citizen scientist helping us collect and label data that we can use to train advanced AI algorithms to diagnose vehicles and other physical systems. How to Annotate? Start recording by pressing the Green button. Record audio and accelerometer data for at least 45 seconds (recommended). Next, annotate the data with the correct information and submit. What is the Classify function? Classify function lets the user record data that is used by DeepTech Lab's algorithms to produce results outlining the details and detected faults in the vehicles. How to Classify? Start recording by pressing the Green button. Record audio and accelerometer data for at least 45 seconds (recommended). Press. Classify for the results of your recording. Start Over

The Capstone Experience

## What's left to do?

- Stretch Goals
  - Added security for database and server
- Other Tasks
  - Bug fixes for form validation visuals
  - Finish migrating back end from local to remote
  - Refactor code and integrated testing
  - Create documentation

### **Questions?**



Team Michigan State University CSE Beta Presentation