CS 329S: Machine Learning Systems Design
On-Device Detection for COVID

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The Team

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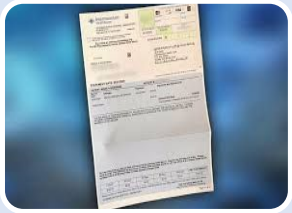
The Problem

Current COVID-19 testing is inadequate. Vaccines are not accessible in developing markets and might not stop COVID variants.

Scarce & Slow



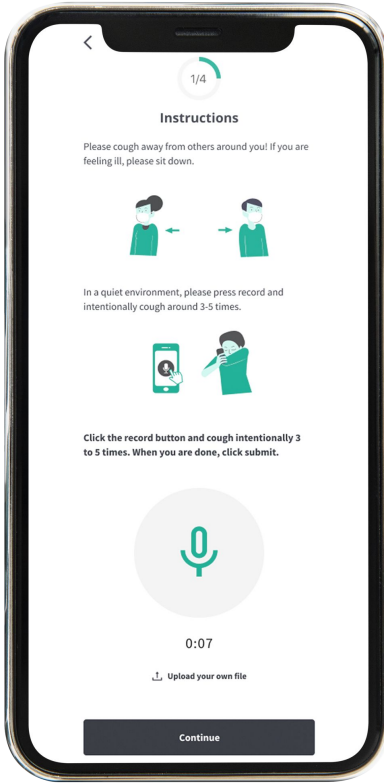
Expensive

Requires Training & PPE

Not Reliable

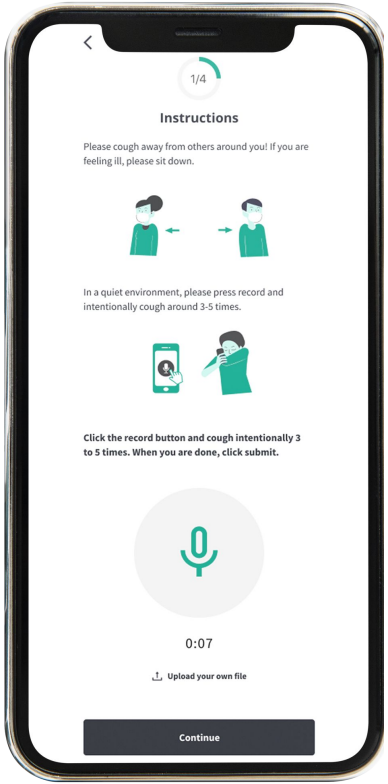
The Solution: Smartphone App to Detect COVID

- AI can identify COVID-19 patterns from smartphone cough recordings [1]
- Instant, free pre-screening for businesses and schools
- Widespread, free testing will **stop the virus spread**



[1] Virufy: Global Applicability of Crowdsourced and Clinical Datasets for AI Detection of COVID-19 from Cough: https://ui.adsabs.harvard.edu/abs/arXiv:2011.13320

Why Edge Prediction?



Lack of Internet Access

- Latency & connectivity is limited
- Censoring & internet shutdown by government

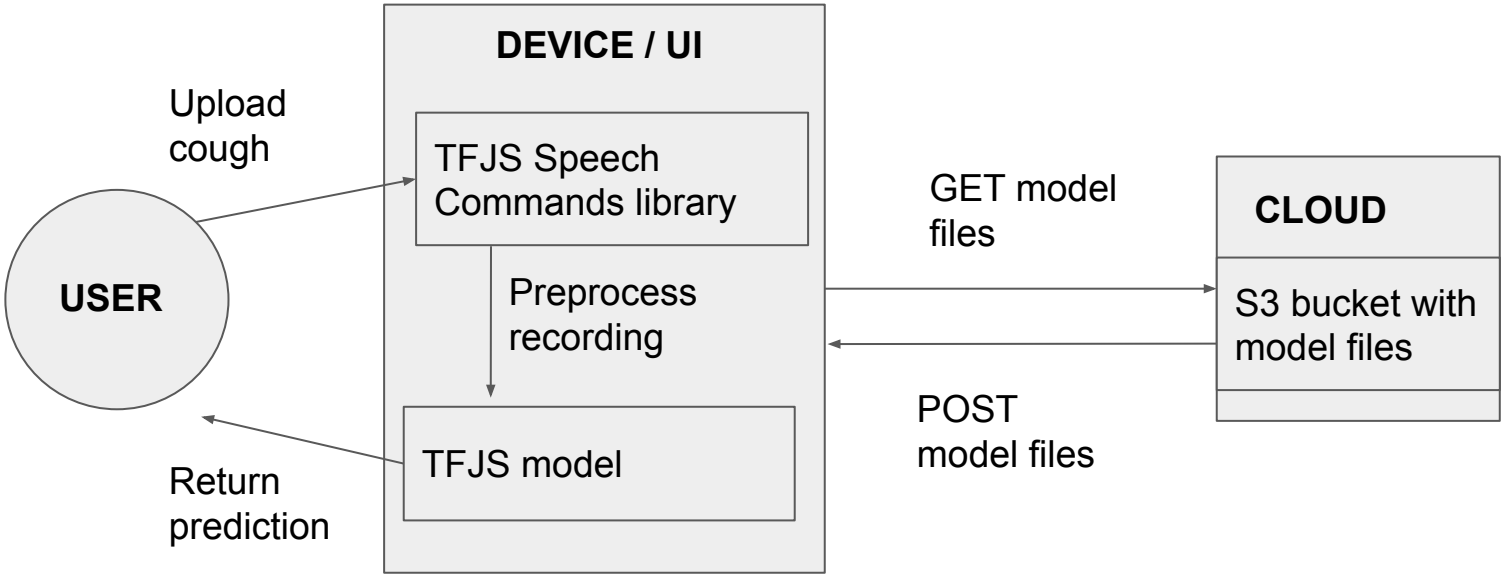
Privacy Concerns

- Fear of COVID positive diagnosis => job loss
- PII & health data cannot cross borders (GDPR)

Server Costs

- Potentially billions of predictions daily
- Maintenance and scalability of cloud server

System Layout



Future Work

Route 1: Use our own model

- Train our own model
- Share preprocessing code
- Add cough detection layer

Route 2: Teachable Machine

- Load more cough audio files into Teachable Machine

All Routes

- User testing
- Evaluate metrics like speed, sensitivity
- Make fancy UI and app

Thank You

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