MEET Ezra: INTRODUCTION & GOAL:
Technology is woven into the tapestry of modern day human existence. Not a single day passes in which billions of people obtain, create, and exchange data on the internet, including through the use of smart speakers. With their ever-growing presence and complexity, it is imperative to have smart speakers that are not only intelligent in their functionality but also secure and protective of personal data. On that note: we created Ezra.

Our vision for Ezra is to be able to provide a one-stop device that combines information of exercise, nutrition, medical care, and COVID-19, while ensuring that sensitive health-related and biometric data is not tracked and remains protected. The demand for health and fitness related apps and information has exponentially increased in recent years, and we aim to provide information quickly with the convenience of voice based interactions while also reducing the amount of trackers and third parties that personal data is shared with. We envision a world in which we can gain knowledge about our health without paying the price of the little remaining privacy we have left.

YOUR HEALTH IN YOUR HANDS
Skills Developed and Purpose

Ezra: SHOW BUT DON’T TELL
Raspberry Pi and Mycroft AI Experience

RESULTS:
After analyzing the network trace files on Wireshark the number of trackers found by the four blocklists were summed for the health and fitness persona.

- Across 164 packets that were analyzed, there was only ONE domain accessed by Ezra (Mycroft) that was a tracker and present on any of the four blocklists.
- It originated from np0.org.
- Less than 6.1% of domains accessed were known trackers

Indicates that Ezra is almost completely clean, and is not a serious threat to our personal privacy and biometric data as a tracker.

ACKNOWLEDGEMENTS
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Privacy and IoT Research Exploration Workshop, 2022
EZRA: E.Z. Rapid AI
Personal Health Assistant
Samiksha Yelthimar and Rissa Piland
University of Southern California, MiraCosta Community College, University of California, Irvine

Procedure and Materials
- Materials: Raspberry Pi 400, Speaker, Microphone, SD card, MyCroft AI Software
- Overall Procedure:
  1. Set up smart speaker using Raspberry Pi
  2. Install and create various health and fitness-related skills
  3. Test and refine questions and responses
  4. Gather data by interacting with it as a typical user
  a. Ask “How should I work out today”, “Chew me up.”
  “Healthy food ideas,” and “Do I have COVID-19”.
  5. The network traffic from the interactions were captured and analyzed through the use of Wireshark

Future Innovations
- Female reproductive health functionality, such as menstruation, ovulation, and pregnancy trackers
- Include manual personalization that is stored locally (not sent to 3rd parties)

Challenges
- Navigating the command line and directories
- Getting hacked in the middle of developing our project
- Using Wireshark incorrectly and troubleshooting

Key Features
- Simple wake word: “Hey Ezra”
- Supports 7 key functionalities relating to health and fitness: nutrition, exercise, health care, coronavirus, mental health
- Responds to over 40 vocal commands
- Virtually ZERO trackers present in the speaker, allowing for a greater degree of privacy and security for personal data

Why US?
Ezra PROTECTS your biometric data. Unlike most forms of data on the internet, your personal health data is unchangeable. Other speakers like Amazon Alexa record your voice and personal information and are not subject to HIPAA laws. These speakers both track and record personal information to advertisers. Ezra protects what matters most: your privacy by eliminating trackers.