IEEE Consumer Technology Society

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Disclosure

- Companies shown have no business relationships with me unless stated otherwise
- Comments made are views of me (Joseph Wei) and do not reflect IEEE

Agenda

- Overview of 2024 CES
- Consumer Electronic Devices and AI
- Interesting Wearables at CES
- Interesting IoT Devices at CES
- Q & A will be after Tom Coughlin's talk

CES 2024 Overview

1/30/2024

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CES Key Stats for Recent Years

	2024	2023	2022	2021	2020
Attendees	170,000+	117,000+	4500+	Virtual	170,000+
Exhibitors	4300+	3200+	3000+	Virtual	4,500+
Days	4	4	3	4	4

Tips to join CES from the Bay Area

- CES usually opens its registration in September for one month with free exhibit pass to Industry attendees, media and exhibitors. Past attendees receive an email with a code for free expo pass with regular price at $350.
- Book your flight early, Southwest is more economical if you need the flexibility to change flights on the same day with no penalty, just pay the fare difference.
- Book directly with the hotel instead of through CES and other sites as most hotel honor a full refund for cancellation with only a 48 hours notification.
- No need for a rental for most people as there are complementary buses between the exhibit halls, and major hotels. Uber/Lyft/taxi are quite easy to get except a bit of a wait at the end of the exhibits.
- Many free or by-invitation networking events each evening, research ahead of time for their times and locations.

Consumer Electronics and AI

1/30/2024

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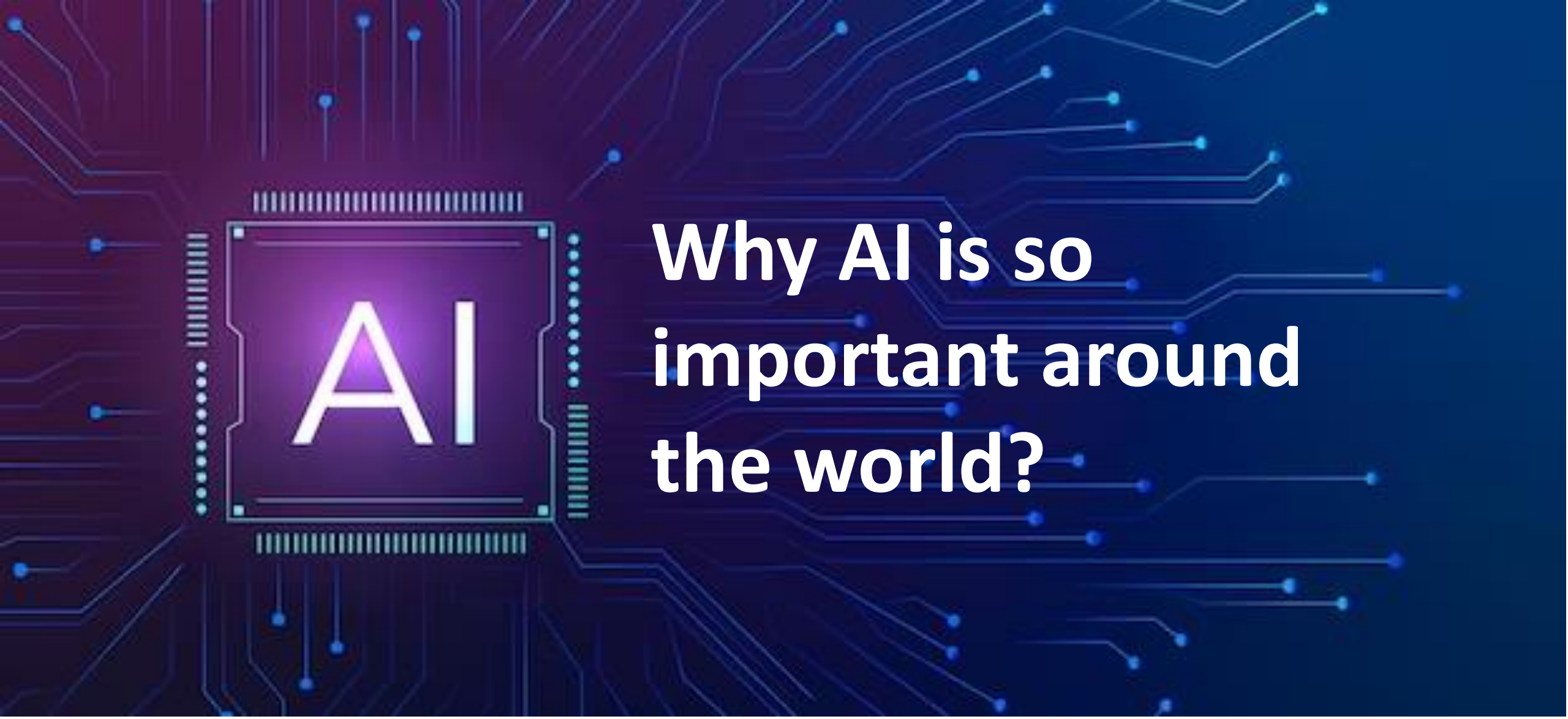
Consumer Electronics with AI



Why AI is so important around the world?

Impacts of Artificial Intelligence

Positives

- Significant contribution to global financials
- Greater user experience leads to productivity and efficiency improvement to both consumers and businesses
- Increased personalization with more precise predictive analytics

Negatives

- Jobs displacements by robots and automation
- Lack of ethical, privacy and security guardrails with improper use
- Amplify biases in the training data, algorithms, and improper implementation

Which Regions Gain the Most from AI?

Source: PricewaterhouseCoopers

What's New for AI?

Ambient Intelligence (AmI)

Ambient Intelligence (**AmI**) is a term used in computing to refer to electronic environments that are sensitive and responsive to the presence of people. The term is generally applied to consumer electronics, telecommunications, and computing.

Source: Wekipedia

AmI vs AI

Concepts	Ambient Intelligence (AmI)	Artificial Intelligence (AI)
Focus	Creating intelligent environments	Developing intelligent systems
Objective	Enhancing user experiences, proactive adaptation	Reasoning, problem-solving, learning
Data	Real-time sensor data	Historical and real-time data
Context Awareness	High emphasis	Variable emphasis
Application Examples	Smart homes, transportation systems, healthcare	Virtual assistants, image recognition, autonomous systems

Source: Dataconomy

Generative AI

Generative artificial intelligence (**generative AI**, **GAI**, or **GenAI**[1]) is artificial intelligence capable of generating text, images, or other media, using generative models.[2][3][4] Generative AI models learn the patterns and structure of their input training data and then generate new data that has similar characteristics.[5][6]

Source: Wikipedia

Advantages and Challenges for AI

Advantages	Challenges
Improved user experience	Privacy concerns
Increased efficiency	Security concerns
Personalization	Ethical concerns
Continuous operations	

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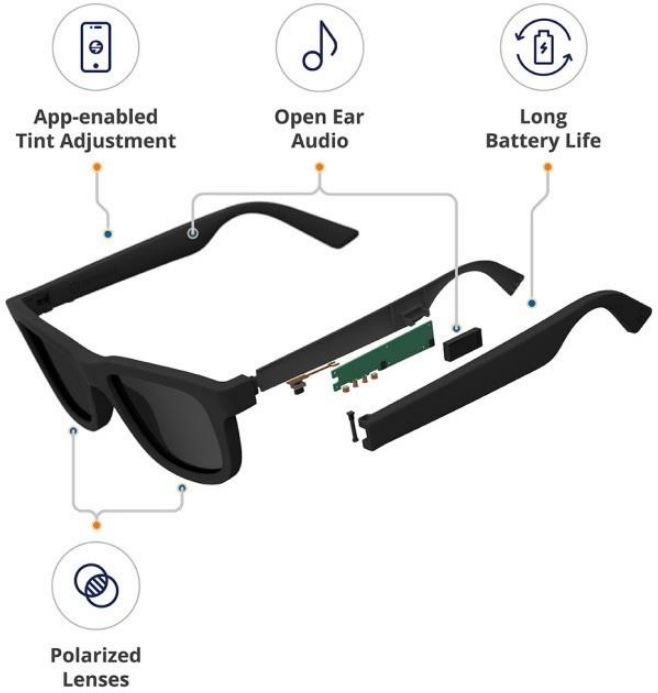


Ampere DuskRx – Smart Tinting Glasses

- Electrochromic polarized lenses
- Built-in Audio/Microphone
- 7 days tinting control
- 4 hours of audio
- $199 - $299
- https://ampere.shop/

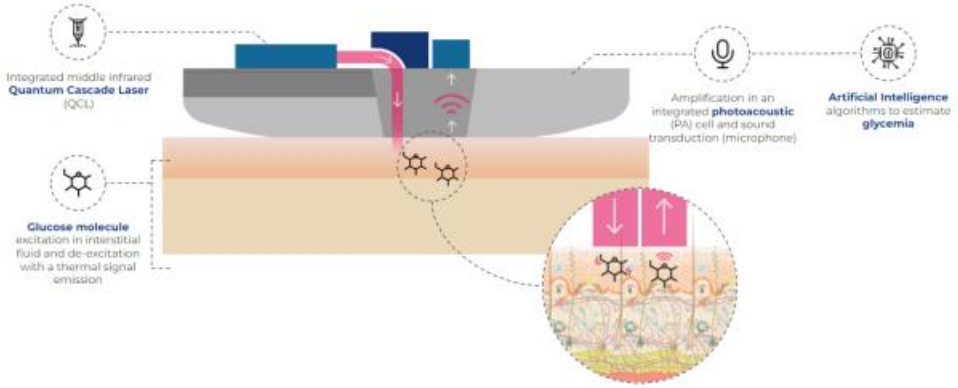


Figure 1: Schematic of the non-invasive CGM sensor developed by Eclypia

Eclypia – Smart wearable for Glucose monitoring

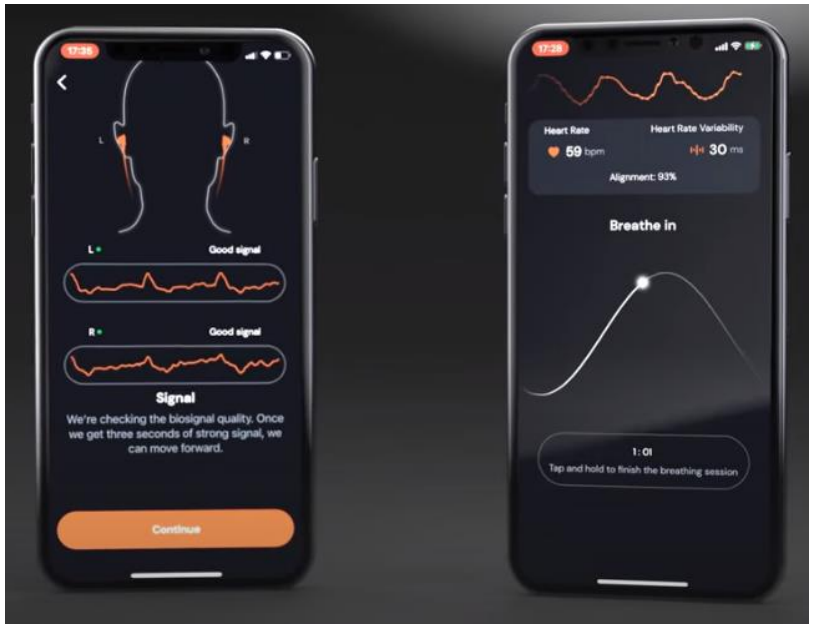
- Non-invasive continuous glucose monitoring using multispectral mid-infrared photoacoustic technique
- Measure the thermal signal created by exciting glucose molecules in the skin
- https://www.eclypia.com/

Healthsign – Smart wearable for Blood Pressure

- Non-invasive blood pressure (NIBP), blood oxygen saturation (SpO2), temperature, respiration and heart rate monitoring
- Custom designed biosensors that enable seamless measurement of clinical grade arterial pulses, ECG and PWV.
- https://healthsign.com/

Kokasin – Smart GPS Tracker Insole

- High accuracy real-time GPS location tracking on an APP
- Ultra-low power LTE-Cat-M1.eMTC enable 10-day period on one charge
- Geofencing with auto alerts
- Designed for comfort and typical daily use for up to 2 years
- https://smd21.com/kokasin/

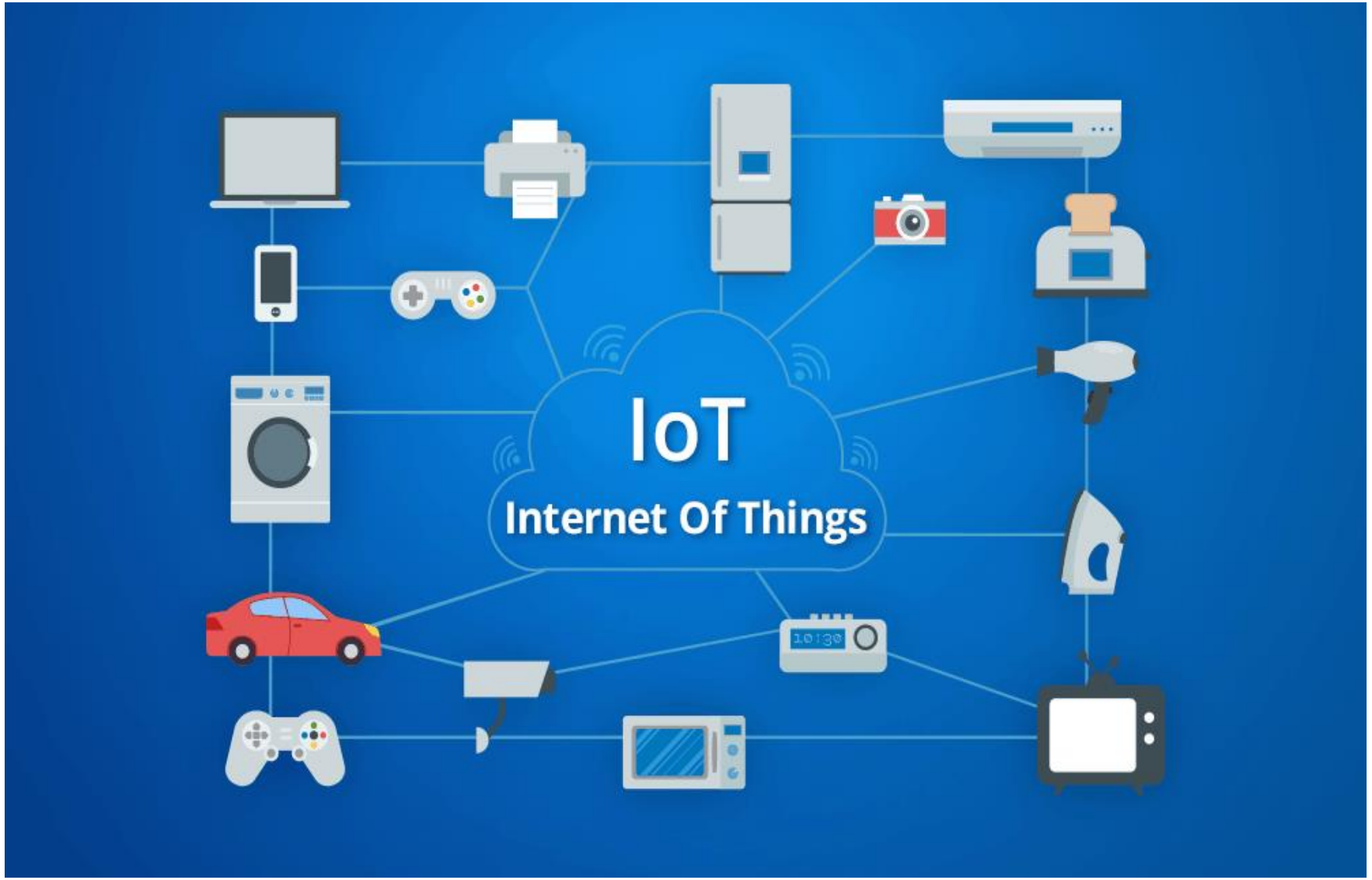


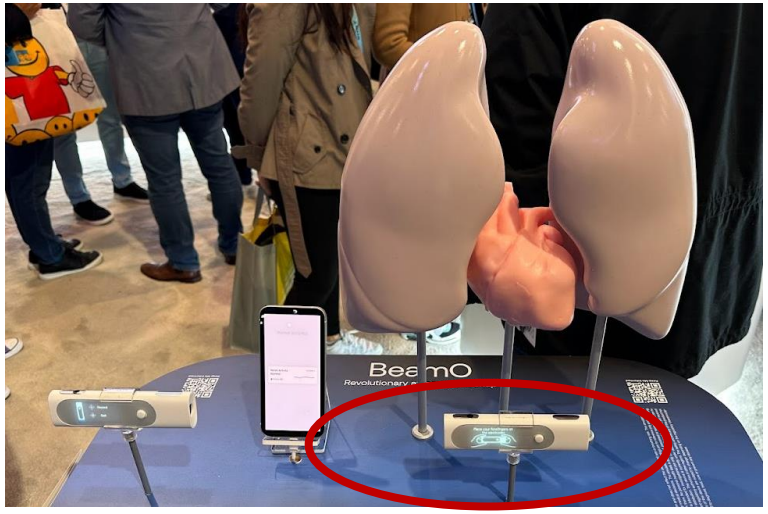
Mindmics – Smart hearable

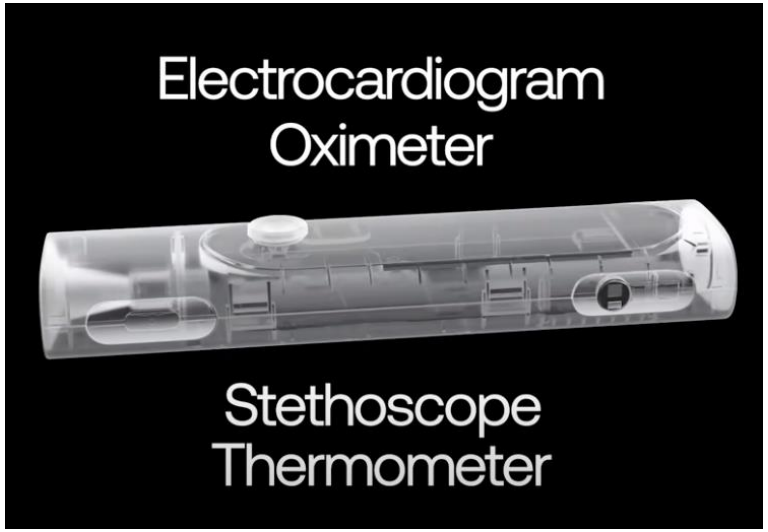
- Measure low-frequency sounds produced by vital organs
- Track Heart Rate (HR) and Hear Rate Variability (HRV) with 99% correlation to an ECG
- Consumer: $30/month subscription
- https://www.mindmics.com

Wesper – Smart wearable

- FDA approved sleep tracker device
- Tracks SpO2, Heart Rate, Snoring, breathing, sleep positions
- Consumer: $75/month subscription
- https://wesper.co


IoT
Internet Of Things

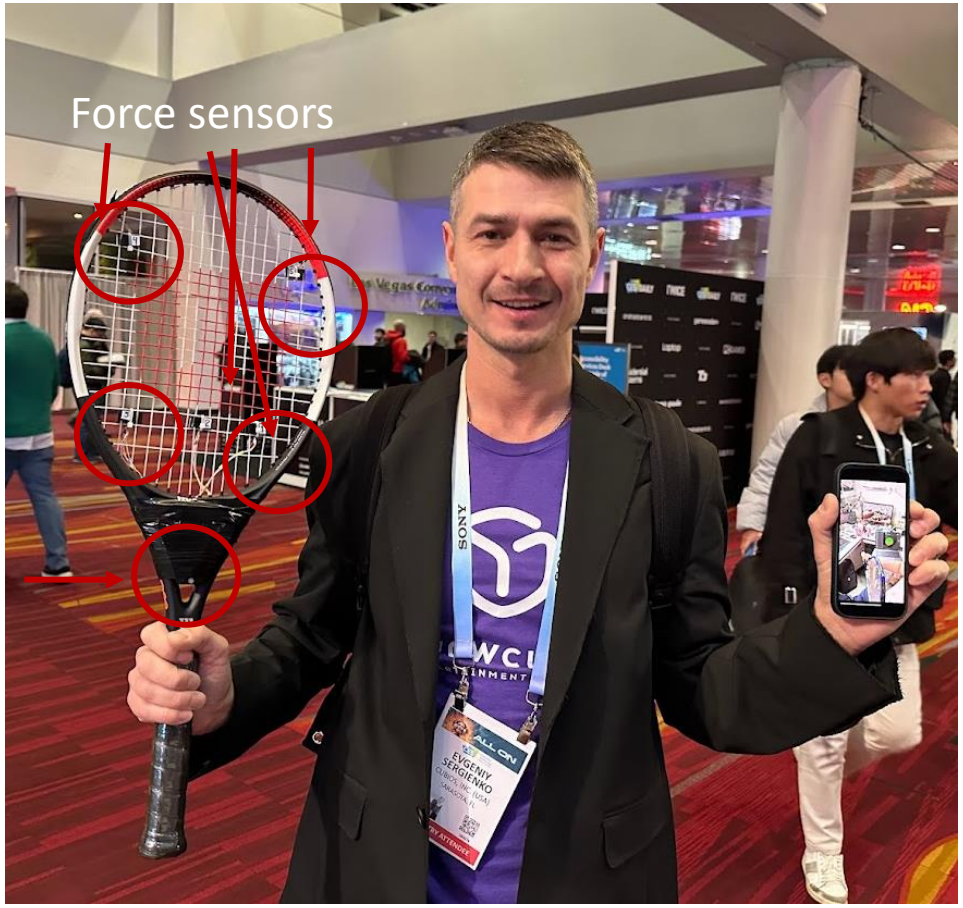




BeamO – Multiscope

- Contactless measures of temperature from the forehead
- Digital stethoscope to listen to heart and lungs
- Electrocardiogram detects irregularities in heartbeats
- Oximeter to show blood oxygen level
- https://www.withings.com/us/en/beam-o

Cubios Inc. – Smart Tennis Racket



- Very early prototype, sensors attached to the strings to measure force and speed
- Use mainly for training
- Bluetooth connected with an App

Glüxkind – Ella AI Assisted Stroller

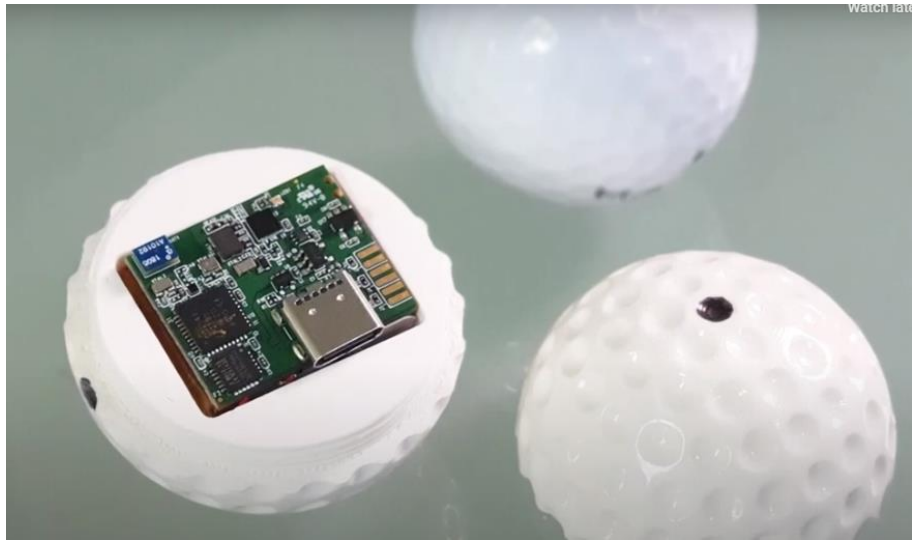
- Motorized with removable battery.
- Hands-free walking the stroller.
- Motorized to assist pushing uphill.
- Programmable for rocking back and forth in-place.
- An App to set up for auto control of speed and movement of the stroller
- Starting at $3,000 USD
- https://gluxkind.com

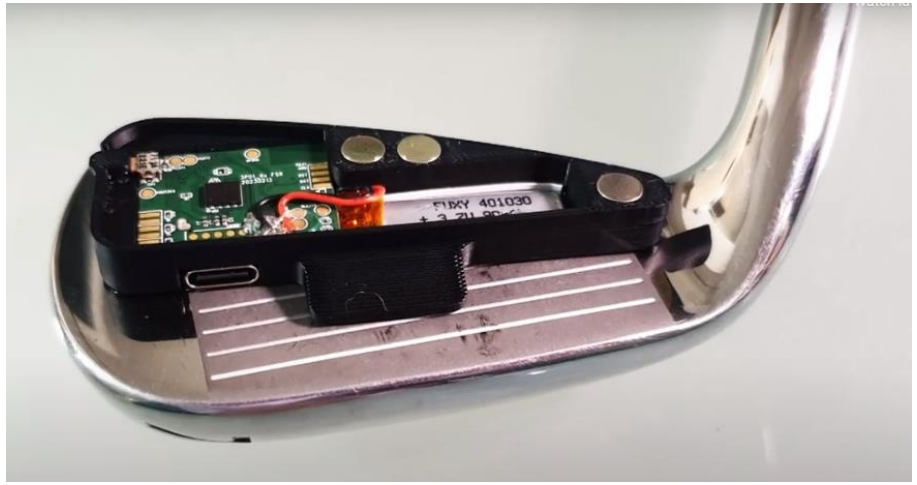
Hyundai Mobis

- Front bumper is a digital display
- Has both Short Range Radars front and back of the car.
- Mid Range Radar in the front.
- All four wheels can turn, so the car can drive sideways
- Hyundai Mobis CES 2024

Indigo Technologies

- Electronic suspension system for automobiles
- https://indigotech.com/





ITRI – iGolfPutter

- Sensors chips are placed in the club head and in the golf ball.
- Collect data including swing angles, swing speeds, ball flight, speeds, trajectories, and paths
- https://event.itri.org/CES2024/tech_detail/3/

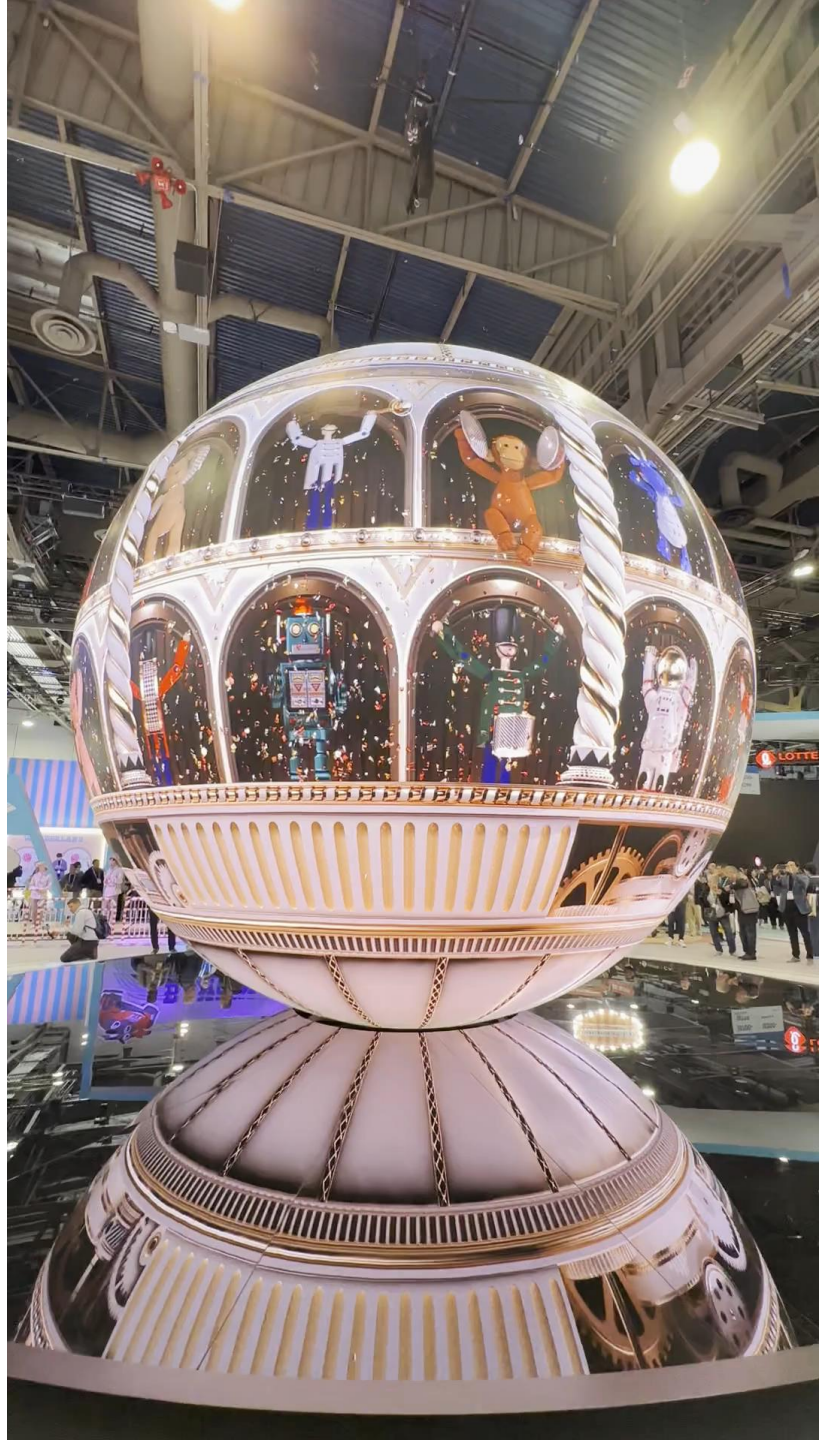
OTOM Mine Alnu

- FDA approved handheld, wireless x-ray generator
- Deliver 80 kv
- 300 images in a single charge
- ~ $3000 USD
- https://nooka-otom.com/eng/

Pawport – Smart pet door

- Smart pet door with a sensor on the pet's collar
- Fits over existing pet door
- Battery powered with an App
- $499
- https://pawport.com/

Interesting Technologies



thank you
danke
謝謝
ngiyabonga
teşekkür ederim
gracias
merci
obrigado
dziękuję
go raibh maith agat
mochchakkeram
sukriya
kop khun krap
arigatô
takk
dakujem
grazie
terima kasih
감사합니다
ありがとう
ευχαριστώ
мерси
спасибо
Баярлалаа
рахмат
dank je
tapadh leat
mauruuru
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