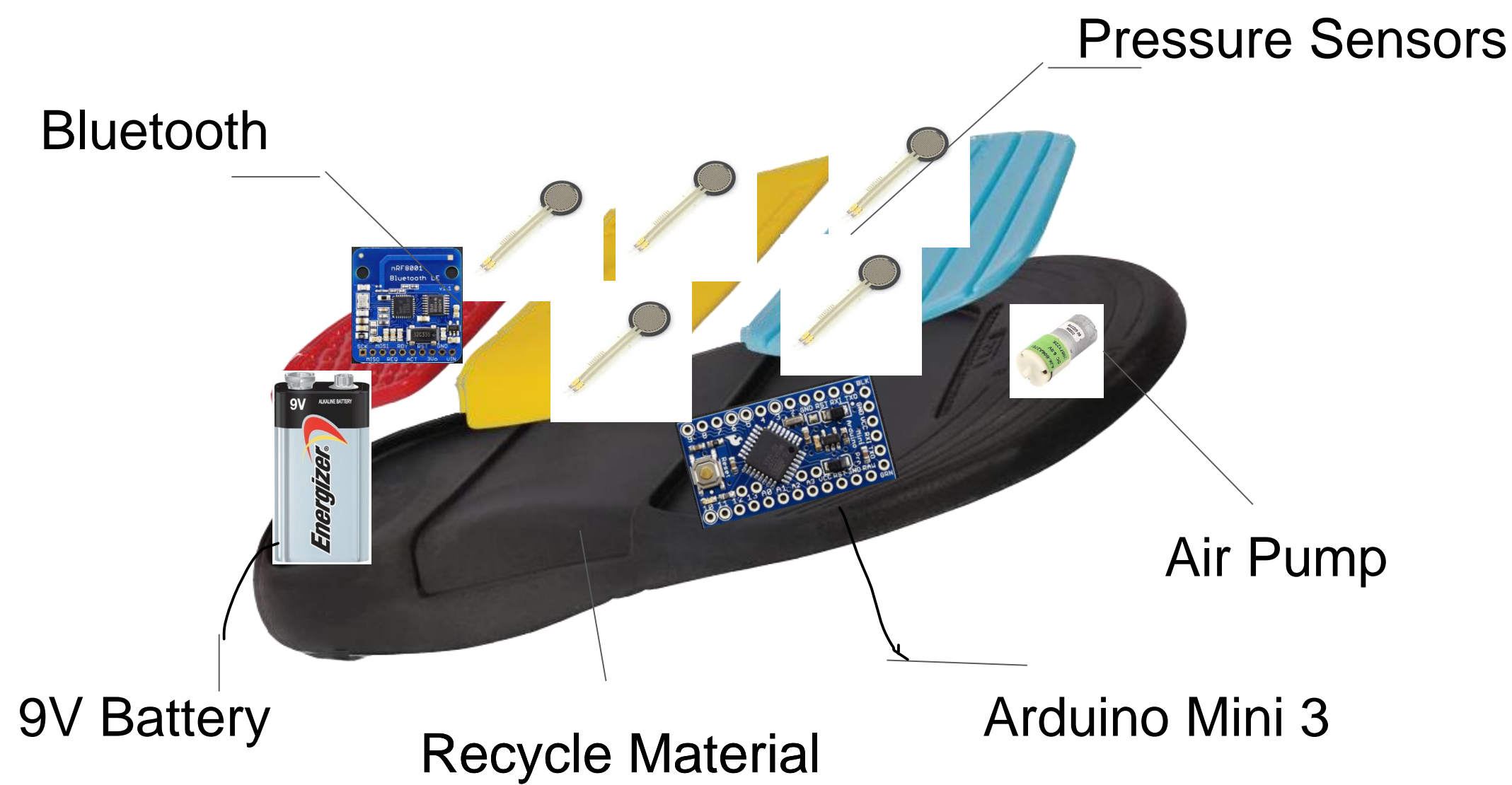# Smart Shoe Sole

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Professor Peter Tseng
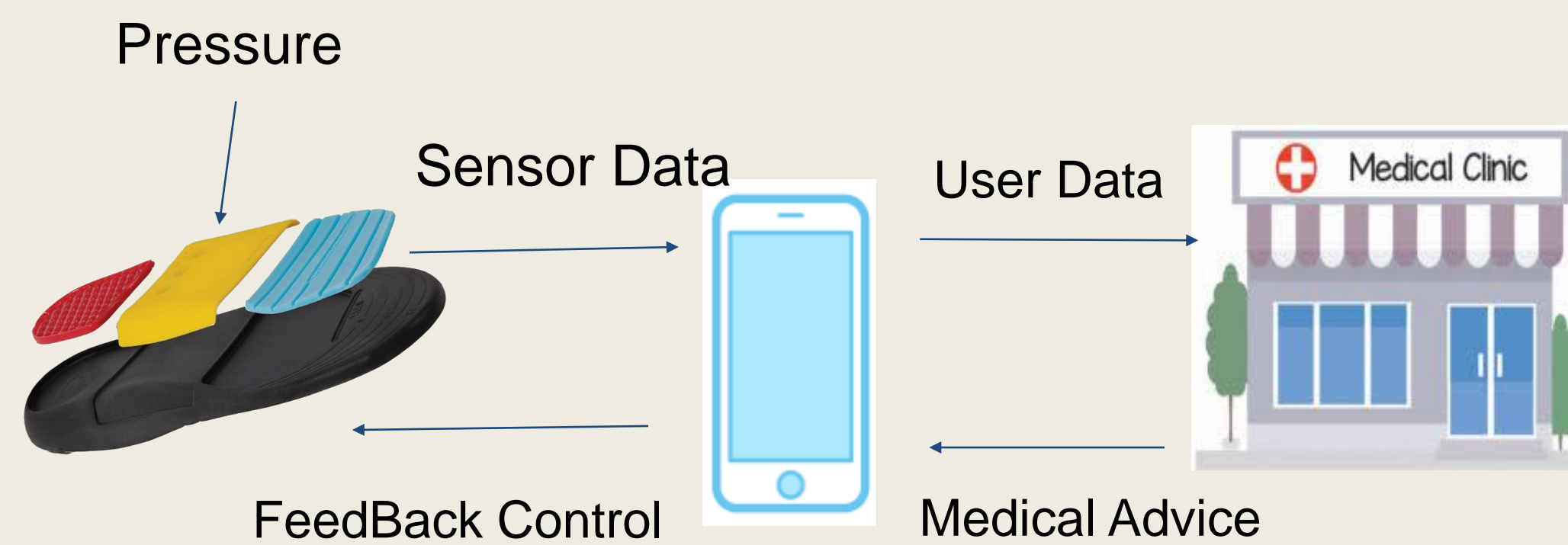Department of Electrical Engineering and Computer Science

The Smart Shoe Sole

Bluetooth

Pressure Sensors

Air Pump

9V Battery

Recycle Material

Arduino Mini 3

Hardwares

- Pressure sensor system:

It consists of a microcontroller with Bluetooth compatibility, a Lithium-ion battery and pressure sensor matrix.

-The microcontroller:

It transmits the data it acquires to a mobile App via Bluetooth. The App processes the data and feedback the analyzed result back to the shoe sole.

- An wireless controlled air pump system:

It picks up the direction from the microcontroller and adjusts the shape of the shoe sole to provide better support.

Objective

The smart sole of shoes is designed to monitor and correct one's standing and walking habit by a matrix of pressure sensors and data analyzation.

Connectivity

Pressure

Sensor Data

User Data

Medical Clinic

FeedBack Control

Medical Advice

Sensor Matrix

We will put multiple sensors on specific position to get the feedback and plot the 3D model of the pressure distribution the customer exterts to the sole.

Current Process

- Developing mobile application
- Testing different types of force sensors
- Connecting the circuit: Microcontroller, Sensors, Bluetooth and Battery

Software

-Environment:
The specific software for this system will be designated to integrate with Android system and based on Java in the smartphone end.
-Feedback
The App will receive the feedback from arduino Mini, and then plot a 3D picture which can give customer a clear view of how their foot land on the shoe pad.
-Connectivity
The App will send measured information to a personal clinic by the user's choice.

The Smart Shoe Sole

Smart Sensor

Bluetooth

Microcontroller

A Smart shoe sole that can adjust its thickness and shape and can sense the force exerted on it by foot

Enter User ID

Password

LOGIN   REGISTER

The Smart Shoe Sole

Smart Sensor

Bluetooth

Microcontroller

A Smart shoe sole that can adjust its thickness and shape and can sense the force exerted on it by foot