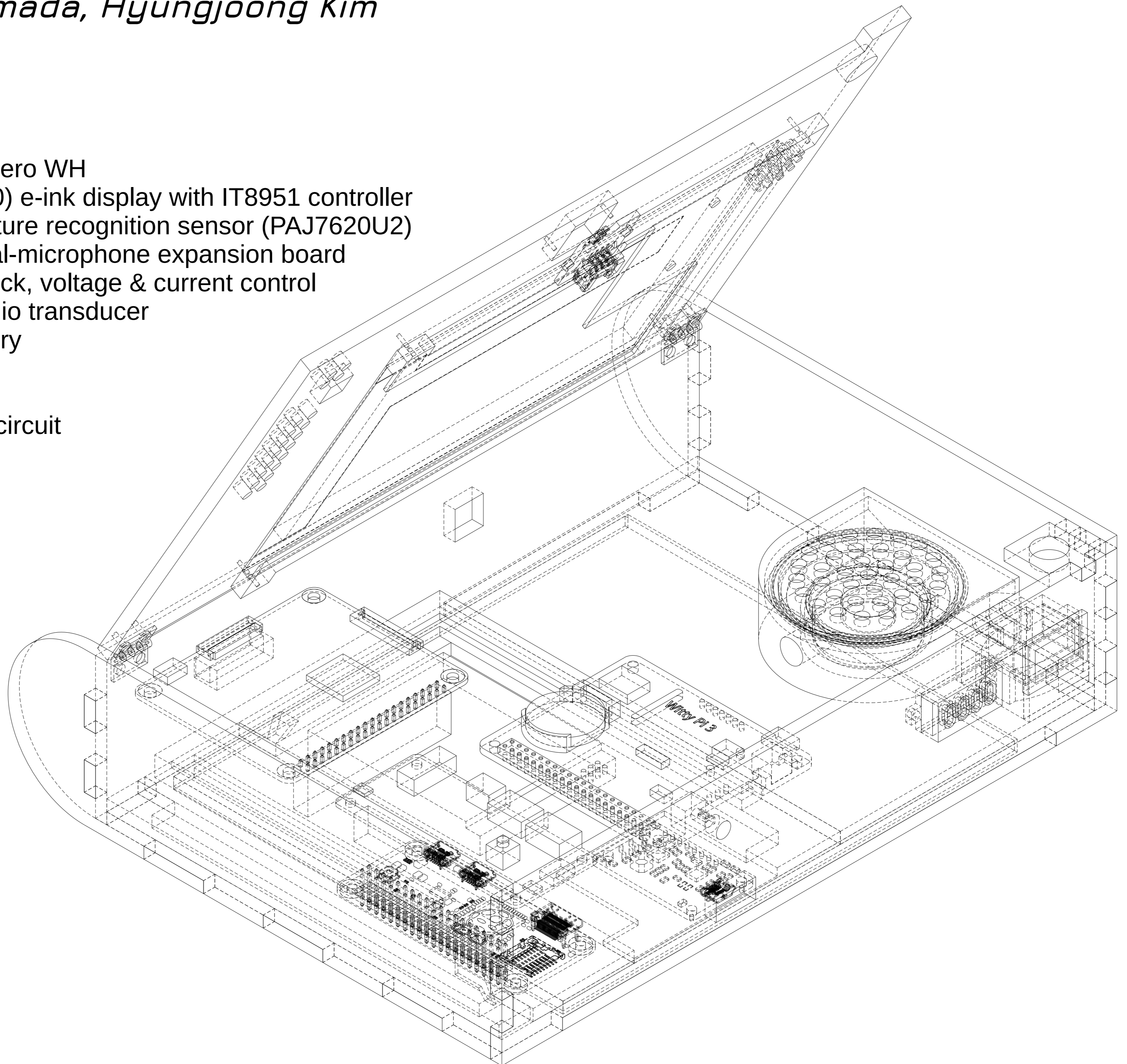# Personal Primer Prototype 1:
Invitation to Make Your Own Embooked Speech-Based Educational Artifact
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Hardware

- Raspberry Pi Zero WH
- 6inch (600x800) e-ink display with IT8951 controller
- Grove I2C gesture recognition sensor (PAJ7620U2)
- Respeaker dual-microphone expansion board
- WittyPi3 for clock, voltage & current control
- 1W 8 Ohm audio transducer
- 3.7v Lipo Battery
- Mini Voltmeter
- Rocker switch
- USB charging circuit

Properties

Speech-based
- Deepspeech model and our own exercise-specific language models (scorers) for speech recognition.
- ECAPA-TDNN embeddings for speaker verification and identification.
- Audio-text support: from syllabic level of language acquisition through words and simple sentences to fairy-tales and fables.

Embooked
- Standardized A5 format. Fit to school bags and book shelves.
- Physical content protection
- E-ink Display

Voluminous
- Effective in energy transformation and heat issues
- Extra space for school tools (e.g. pen, paper, etc).

SDG-compliant
- Sustainable Development Goal
- Energy efficient microcontroller (Pi Zero)
- Solar Panel Chargeable
- Outdoor education (E-ink)

Circadian
- Preventing children from overuse
- Device with rhythms

Edge-computing
- Inferencing and Training on the edge
- No big tech cloud
- Children Data Protection

Modular
- Flexible in assembly and disassembly
- Easily interchangeable