



# TrueVision

A Sign Language Recognition and Speech Synthesis Device



## Problems faced:

- Communication barrier between individuals who use sign language and those who do not understand it.
- Difficulties for hearing/speech impaired individuals in professional settings such as hospitals and banks.

## Objective:

To bridge the communication gap for individuals with hearing and speech impairments by developing a device that:

1. Recognizes sign language.
2. Converts sign language into speech.

# USE -CASE



## A patient visiting a Doctor's Clinic for consultation

1. Doctor has the smart device for communicating with the patient.

Here ,Doctor is the primary user of the device.

2.Patient Communicates with the device via the camera.

Here,,Patient is the secondary user of the device.

# List Of Dialogue Patients Use for communicating



What is causing my symptoms?

I have a persistent headache.

What are the risks and side effects of the treatment?

I feel very tired all the time.

How long will it take to recover?

I am experiencing chest pain.

Are there any lifestyle changes I need to make?

I have trouble breathing.

What tests do I need to undergo?

I feel dizzy and lightheaded.

How should I take my medication?

I have a sharp pain in my abdomen.

Are there any alternative treatments available?

I feel nauseous and have been vomiting.

What can I do to prevent this condition from recurring?

I have a constant cough.

What are the treatment options?

I am experiencing joint pain.

Communicate the location, intensity, and type of pain



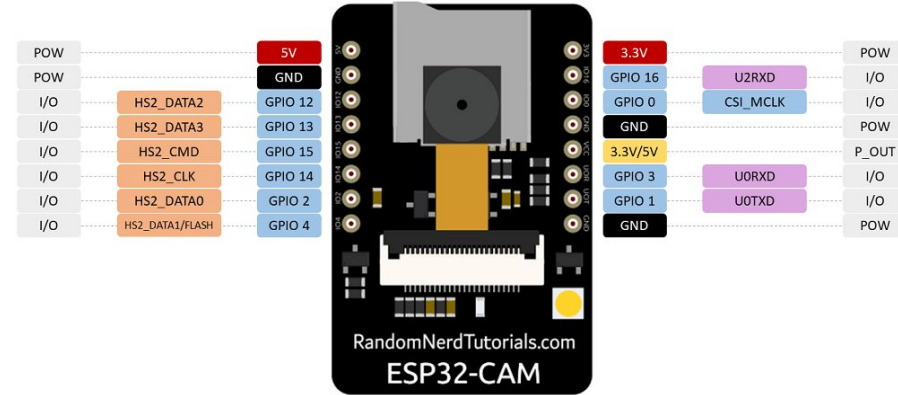
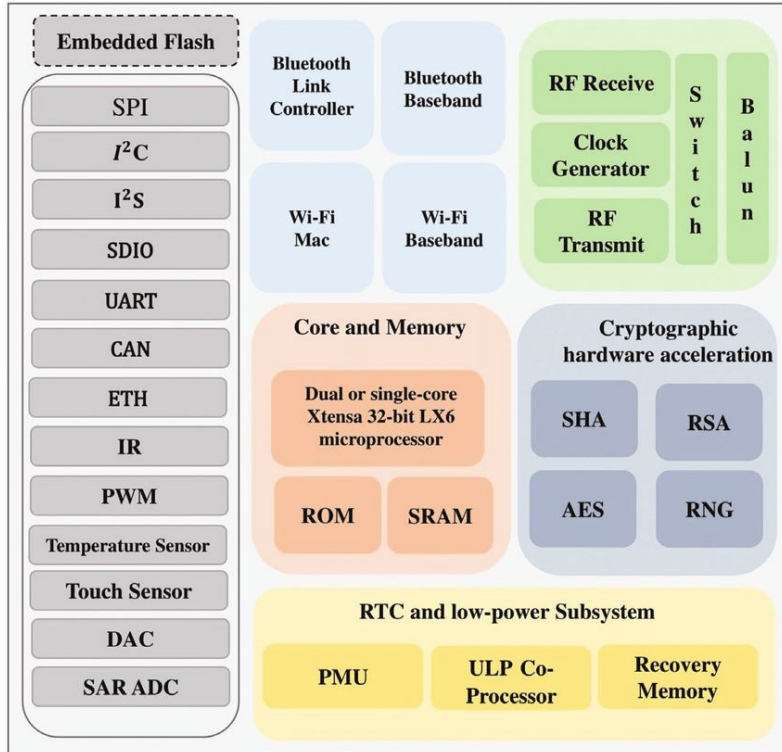
# Feature Specification

The device is expected to achieve the following :

- 1.It uses a camera that captures the hand sign gestures .
- 2.It displays the speech output through a speaker.
- 3.Interface App:

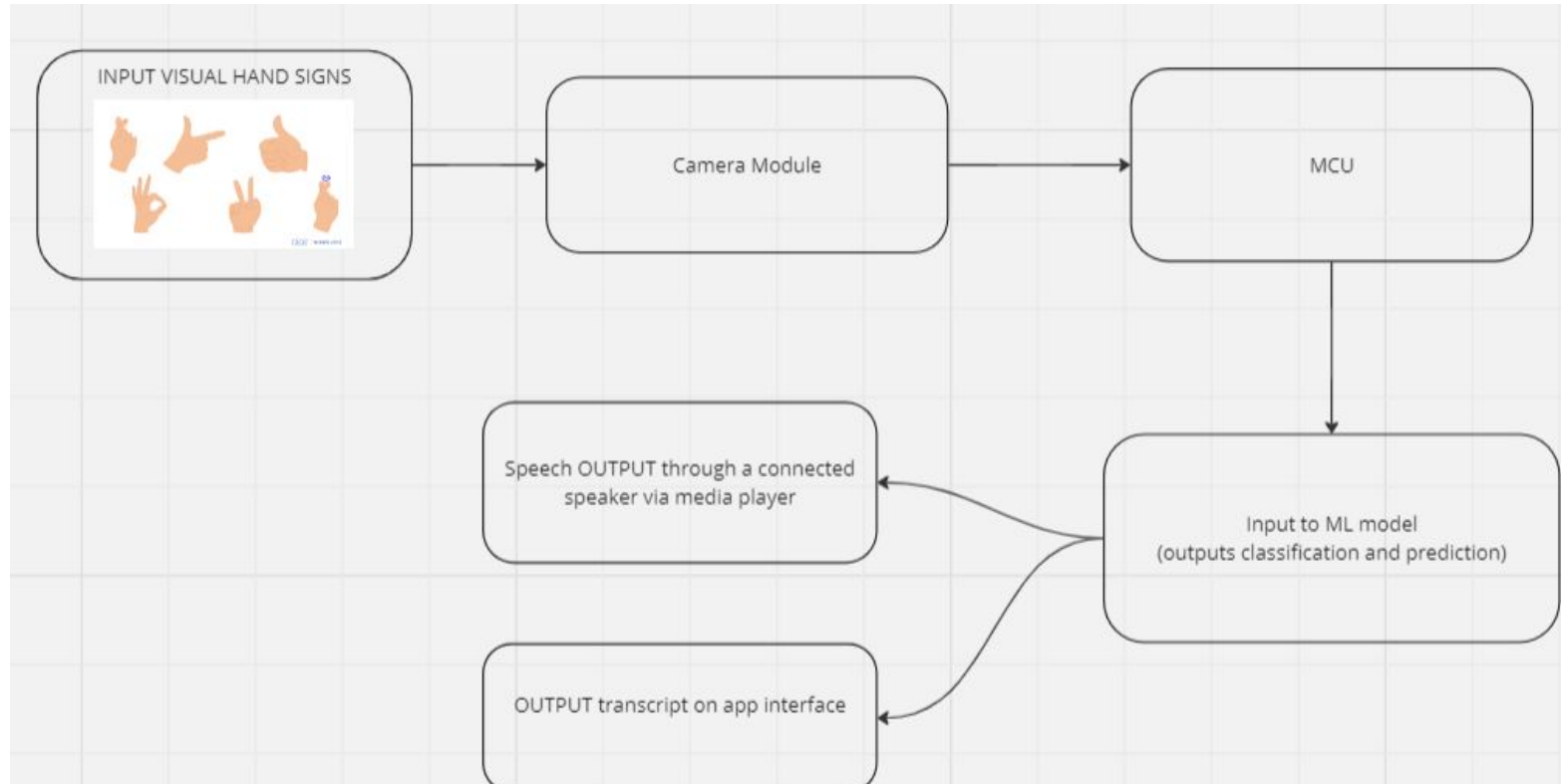
The app displays transcript of detected sign language. Can also translate the transcript into different languages.

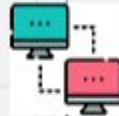
# ESP-32 microcontrollers



- Xtensa single-/dual-core 32-bit LX6 microprocessor(s)
- Supports single-precision Floating Point Unit (FPU)
- Wi-Fi: 802.11 b/g/n
- Bluetooth: v4.2 BR/EDR and BLE
- 34 × programmable GPIOs
- 12-bit SAR ADC up to 18 channels
- 2 x 8-bit DAC

# BLOCK DESIGN





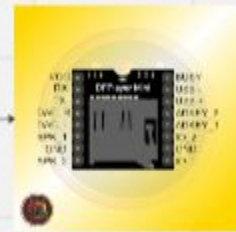
WiFiClientSecure  
(uses local network)



ESP 32 Cam module



esp8266



Mp3 media module



Speaker





## Progress of Poc

1. Identified the probable use case of the product - the doctor and the patient . Also ,the probable list of dialogues that can be performed by the deaf patient.
2. identified the list of components that are required for this project.



# Tentative Plan

- Create prototype
- Test it with real life situations in regard to the use-case
- Design an app for the interface
- Design look for the end product.



# Thank You!