Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE
(All Programs Accredited by NBA)
Department of Information Technology

Hand Sign Language Detection using IoT

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1. Introduction

- Problem Identified :
  - People affected by speech impairment rely only on sign language, which makes it more difficult for them to communicate with the remainder of the majority.
  - Deaf and Mute people know how to sign but the vast majority of public do not.
- Solution Proposed :
  - The solution we propose is making a real time hand sign language detection software which would be helpful for us to learn Sign Language and communicate with them

2. Objectives

1. To detect hand sign language and display the letter on the screen.
2. To make use of leading machine learning algorithms to detect and recognize hand signs
3. To teach young children how to sign and evaluate by checking their form.

3. Scope

1. Can be used to Learn Sign language
2. Can be used to communicate with a Deaf and Mute Person even if you don’t know the signs
3. Can be applied in Hospital settings to communicate with the Deaf and mute people
4. Can be used to teach young children how to sign

4. Summarizing the dataset

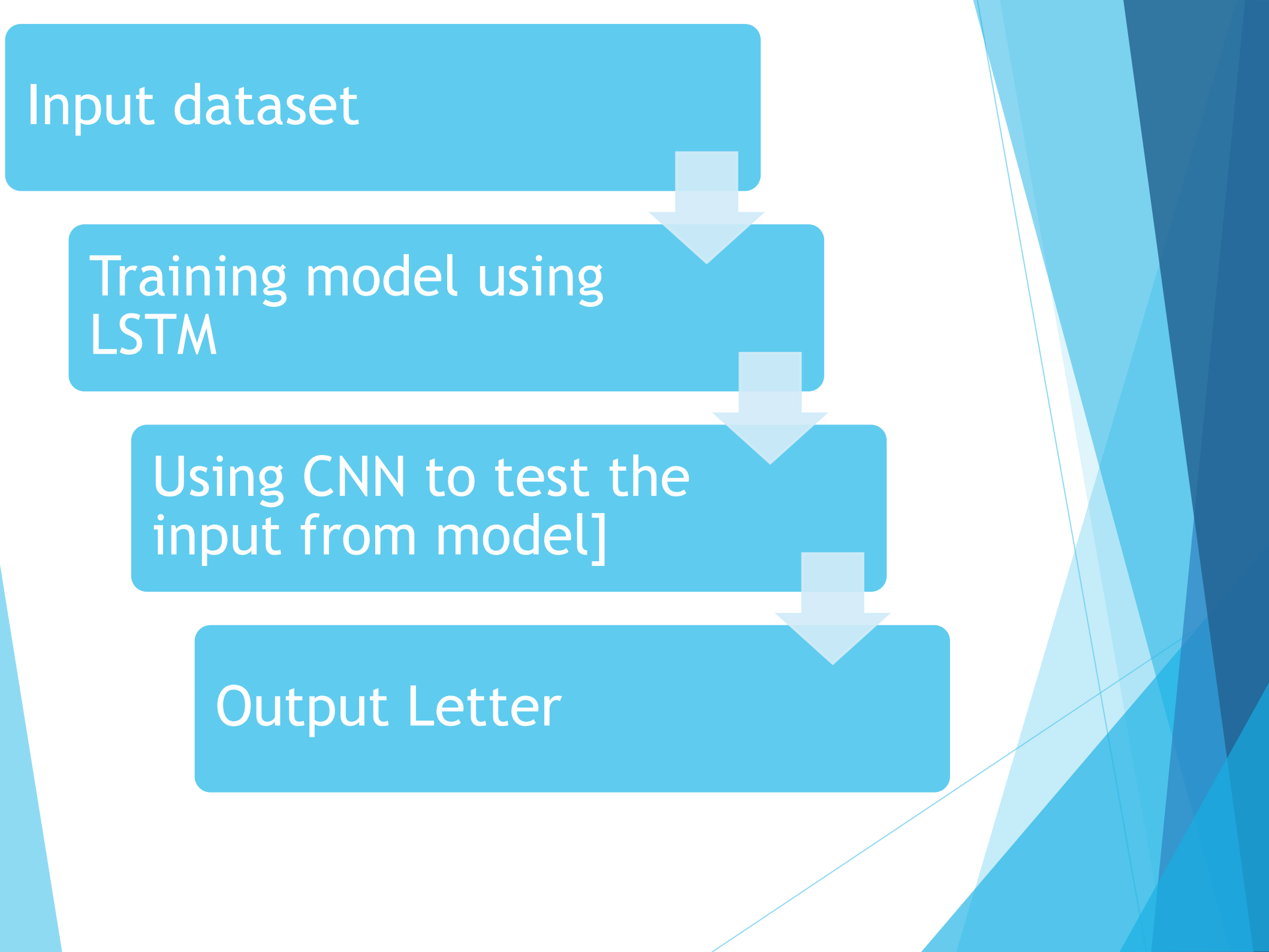
The Dataset used here is Indian Sign Language Dataset which is from: https://www.kaggle.com/datasets/vaishnaviasonawane/indian-sign-language-dataset?resource=download

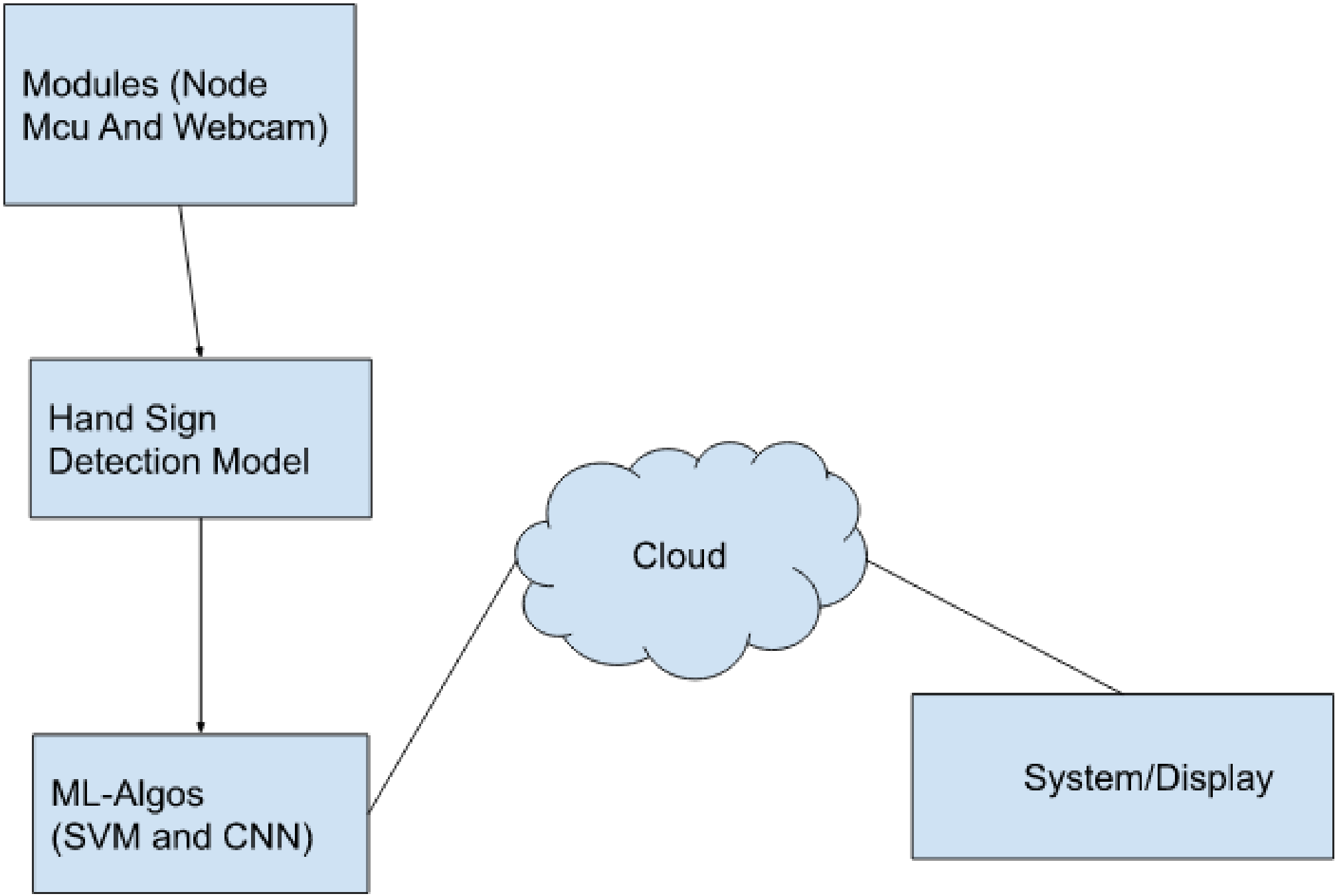
From this, we have used 26 directories each having 1200 images each for every letter of the alphabet.

We converted the data into models and stored them.

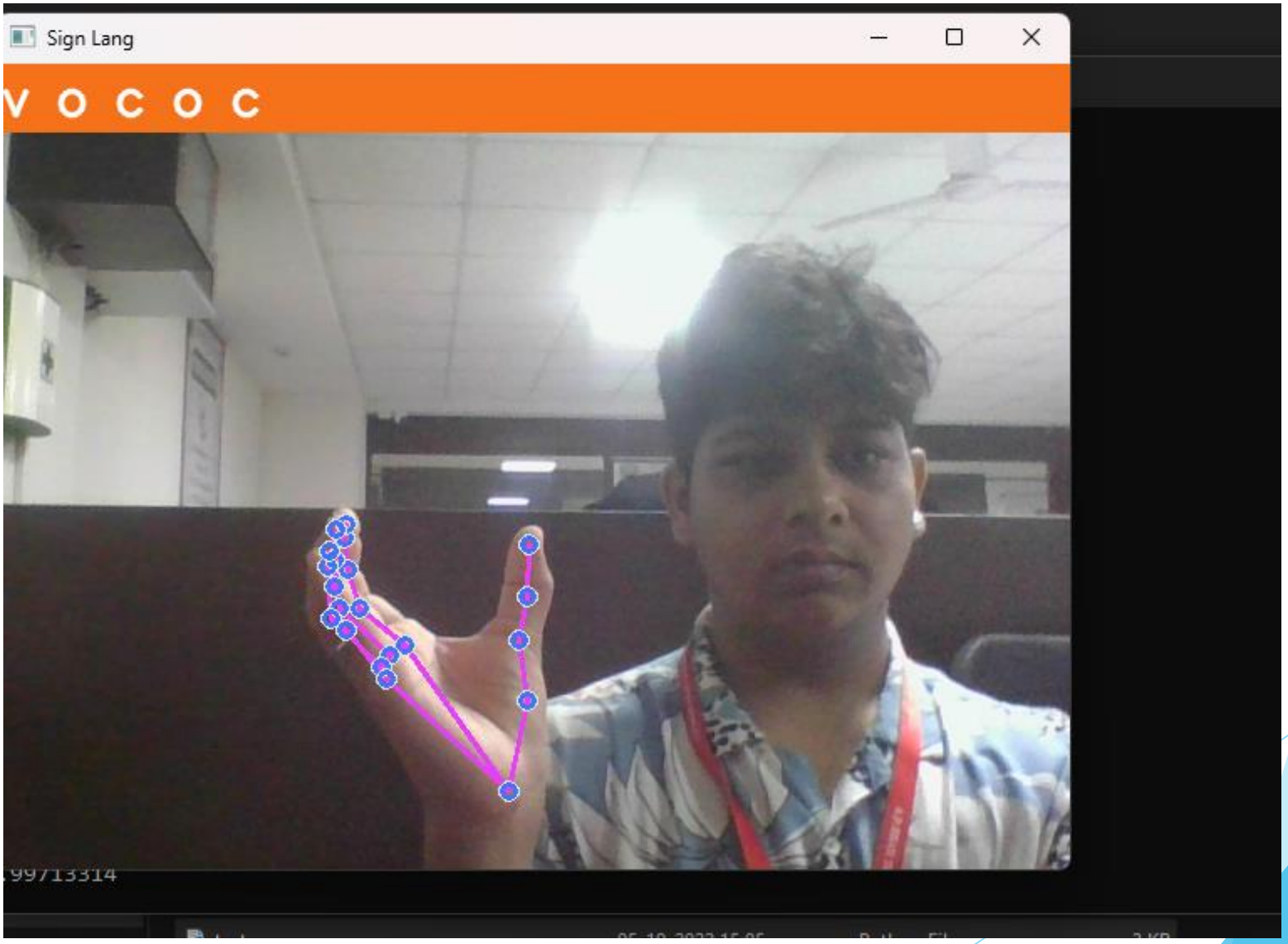
5.Algorithm

- Algorithms used here are: LSTM and visualized the images with the help of CNN
- LSTM: Long-Short Term Memory Networks are a type of RNN networks that use order dependency. This means they use the output of the previous step as the input of the next step.


Input dataset
Training model using LSTM
Using CNN to test the input from model]
Output Letter


Modules (Node Mcu And Webcam)
Hand Sign Detection Model
ML-Algos (SVM and CNN)
Cloud
System/Display

6.Result



Thank You...!!