

## Model Development Phase Template

Date	15 March 2024
Team ID	739665
Project Title	Real Time Communication System Powered By AI For Specially Abled
Maximum Marks	10 Marks

### Initial Model Training Code, Model Validation and Evaluation Report

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include a summary and training and validation performance metrics for multiple models, presented through respective screenshots.

#### Initial Model Training Code (5 marks):

Paste the screenshot of the model training code

#### Model Validation and Evaluation Report (5 marks):

Model	Summary	Training and Validation Performance Metrics																								
Convolutional Neural Network (CNN)	<p>Initialize the model</p> <pre>model = Sequential()</pre> <p>Add the convolution layer</p> <pre>model.add(Convolution2D(32,(3,3),input_shape=(64,64,1),activation = 'relu'))</pre> <p>Add the pooling layer</p> <pre>model.add(MaxPooling2D(pool_size=(2,2)))</pre> <p>Add the flatten layer</p> <pre>model.add(Flatten())</pre> <p>Adding the dense layers</p> <pre>model.add(Dense(units=512,activation='relu')) model.add(Dense(units=9,activation='softmax'))</pre>	<p>Model: "sequential"</p> <table> <tr> <th>Layer (type)</th><th>Output Shape</th><th>Param #</th></tr> <tr> <td>conv2d (Conv2D)</td><td>(None, 62, 62, 32)</td><td>320</td></tr> <tr> <td>max_pooling2d (MaxPooling2D)</td><td>(None, 31, 31, 32)</td><td>0</td></tr> <tr> <td>flatten (Flatten)</td><td>(None, 30752)</td><td>0</td></tr> <tr> <td>dense (Dense)</td><td>(None, 512)</td><td>15,745,536</td></tr> <tr> <td>dense_1 (Dense)</td><td>(None, 9)</td><td>4,617</td></tr> <tr> <td>dense_2 (Dense)</td><td>(None, 512)</td><td>5,120</td></tr> <tr> <td>dense_3 (Dense)</td><td>(None, 9)</td><td>4,617</td></tr> </table> <p>Total params: 15,760,210 (60.12 MB) Trainable params: 15,760,210 (60.12 MB) Non-trainable params: 0 (0.00 B)</p>	Layer (type)	Output Shape	Param #	conv2d (Conv2D)	(None, 62, 62, 32)	320	max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0	flatten (Flatten)	(None, 30752)	0	dense (Dense)	(None, 512)	15,745,536	dense_1 (Dense)	(None, 9)	4,617	dense_2 (Dense)	(None, 512)	5,120	dense_3 (Dense)	(None, 9)	4,617
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	<p>Compile the model</p> <pre>25: model.compile(loss='categorical_crossentropy', optimizer='adam', metrics=['accuracy']) 26: model.summary()</pre>	
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