*Conv2d : layer is typically used for capturing local patterns in the input data.*

*Each filter in a Conv2D layer acts as a feature detector, scanning the input to identify patterns like edges, textures, or more complex structures.*

*Batch Normalization: is a technique used to improve the training of deep neural networks.*

*It operates on mini-batches of data and normalizes the input of each layer by adjusting and scaling the activations.*

*Key benefits of using this layer in this model:*

*Stabilizing Training , Regularization Effect*

***ReLU****: This introduces non-linearity to the model and helps in learning more complex patterns.*

*ReLU replaces all negative values in the output with zero and leaves positive values unchanged.*

***Average Pooling2D :*** *this layer is used for down-sampling the spatial dimensions of the input data before feeding it into the subsequent layers of the neural network.*

*Regularization : that enhances the generalization capability of a network.*

***Dropout:****layers in your model act as a regularization mechanism, helping to improve the model's ability to generalize to new, unseen data by preventing over fitting or under fitting during the training process.*

***Dense:*** *It connects each neuron in one layer to every neuron in the next layer*

*layer is responsible for combining the features learned by the previous layers and producing the final output of the neural network.*

*It converts the raw output scores of the network into probabilities, making it easier to interpret the model's predictions.*

*"frozen" refers to the practice of keeping the weights of certain layers fixed or unchanged during training. When a layer is frozen, their parameters (weights) are not updated or modified based on the new data being used for training.*