RESULTS

The model for classifying breast cancer is assessed by the Breast Cancer Convolution Neural Network. With GPU support, the classification model runs in a TensorFlow background. Since neural networks are called parameterized functions, it was necessary to fine-tune the model's parameters in order to obtain trustworthy outcomes. The histology images are used in the capsule net architecture after the preprocessing stages are finished. The source photos are resized to 28x28 pixels in order to minimize computation. The network is tuned using the following parameters: learning rate, number of epochs, filter shape, and batch size. After testing a range of 50, 80, and 100 epochs, a final number of epochs is chosen to achieve high validation accuracy. The main layer used to extract the features from the histology image is the convolution layer. Different numbers of filters are present in the convolution layer. with a kernel size of 3, ranging from 16 to 256, and finally chosen as 25. Figure 7(a) displays the input image, and Figure 7(b) displays the downsized image that we obtained from the model's output.

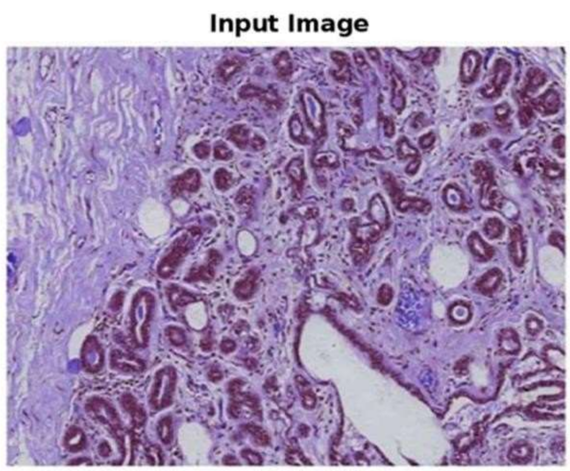

Fig:7. (a) Input Image

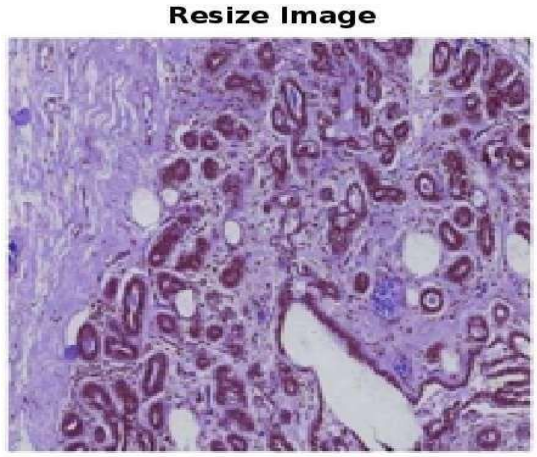

Fig:6. (b) Resize Image

5.1 ACCURACY CURVE WORKING PROCESS:

During the training process, an accuracy curve typically shows how the accuracy of a machine learning model changes over epochs or iterations. It illustrates the relationship between the model's performance and the amount of training it receives. Initially, accuracy might be low as the model learns, but it should improve over time. However, if the model overfits, the accuracy might peak and then decline on unseen data. Monitoring this curve helps in understanding how well the model is learning and if adjustments are needed, like or adjusting learning rates.

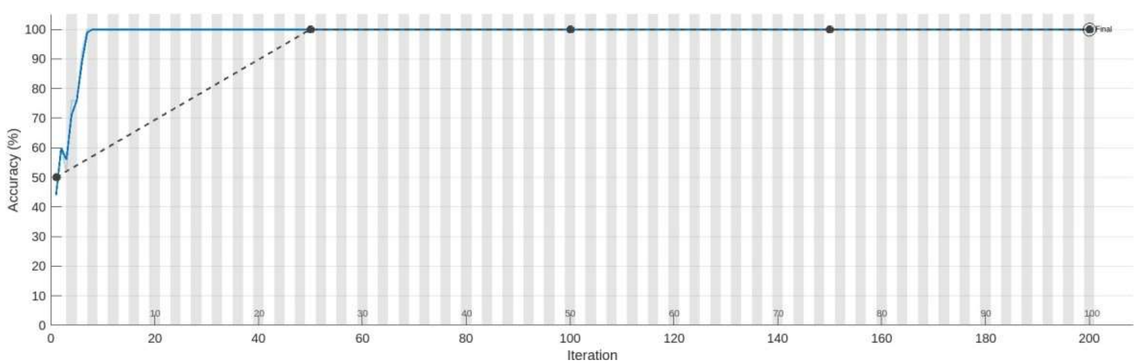

Fig:8. Accuracy Curve during Training Process

5.2 LOSS CURVE WORKING PROCESS

During the training process, a loss curve illustrates how the model's loss (error) decreases over each epoch or iteration. Initially, the loss is high as the model is untrained. As training progresses, the loss typically decreases, indicating the model is improving its predictions. However, if the loss curve plateaus or starts increasing, it suggests overfitting or other issues that may require adjustments to the model or training process.

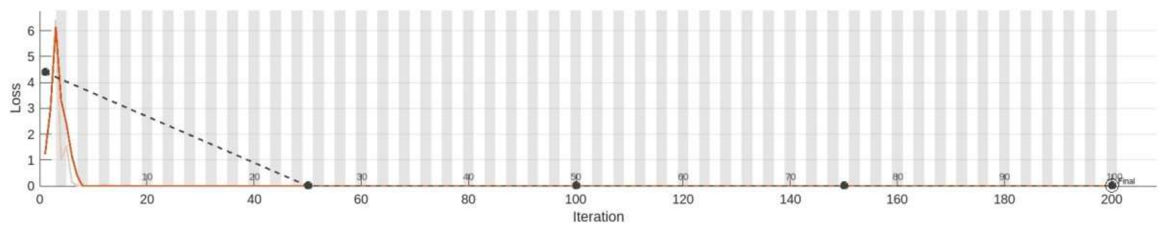

Fig:9. Loss Curve During Training Process

5.3 TRAINING PROCESS

It displays the Breast Cancer Classification Model's performance characteristics. It is evident from both graphs that accuracy is rising and loss is falling with each epoch and after 100 epochs, converged as shown in Table:3.

S.no	Training Cycle	Size
1	Epoch	100
2	Iteration	200
3	Iterations Per Epoch	2

Table:2. Training Process

5.3 COMPARISON

The training cycle and size of our developed BC-CCN model are shown in Fig. 9, and the maximum accuracy achieved by BC-CNN—98.7 percentage is shown in Fig. 10, which contrasts with the Capsule Network's 85.6 percentage accuracy. Only 87 percent accuracy was achieved with a capsule net. The suggested model's higher accuracy can be attributed to parameter adjustments made to the capsule net model.

S.no	Network Model	Accuracy
1.	Capsule Network	85.6
2.	BC-CNN	98.7

Table:3. Accuracy difference between Capsule Network and BC-CNN