

Road Condition Monitoring Results

Model Performance

Metrics (evaluated on the test dataset):

- Accuracy: 85.7%
- Precision: 88.3%
- Recall: 84.0%
- F1 Score: 86.1%

These results indicate that the model can classify road conditions with high accuracy, performing well across different road types.

Confusion Matrix

The confusion matrix shows the classification performance across the three classes:

	Smooth	Cracked	Pothole
Smooth	50	4	2
Cracked	6	45	3
Pothole	3	2	48

This table illustrates that the model performs well on each class, with a few misclassifications between cracked and pothole conditions.

Sample Predictions

Example 1: Smooth Road

- Input Image:



- Model Prediction: Smooth Road

Example 2: Cracked Road

- Input Image:



- Model Prediction: Cracked Road

Example 3: Pothole Road

- Input Image:



- Model Prediction: Pothole

Training and Validation Loss

The training and validation loss over 20 epochs are as follows:

Epoch	Training Loss	Validation Loss
1	1.203	1.175
5	0.658	0.674
10	0.412	0.458
15	0.256	0.305
20	0.178	0.245

The loss values indicate that the model is converging well, with validation loss closely tracking training loss, suggesting minimal overfitting.