Piston Defect Detection Using Computer Vision

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IITD-AIA FOUNDATION FOR SMART MANUFACTURING

Objectives

List out all objectives.

Understanding problem statement
OpenCV
Deep Learning Techniques
Computer Vision basic
Pandas and Scikit Learn
TensorFlow
Pytorch
Dataset preprocessing
Image Processing
Data Visualisation
Model Selection and Training
Model Evaluation
Cloud Computing

Timeline - Gantt chart

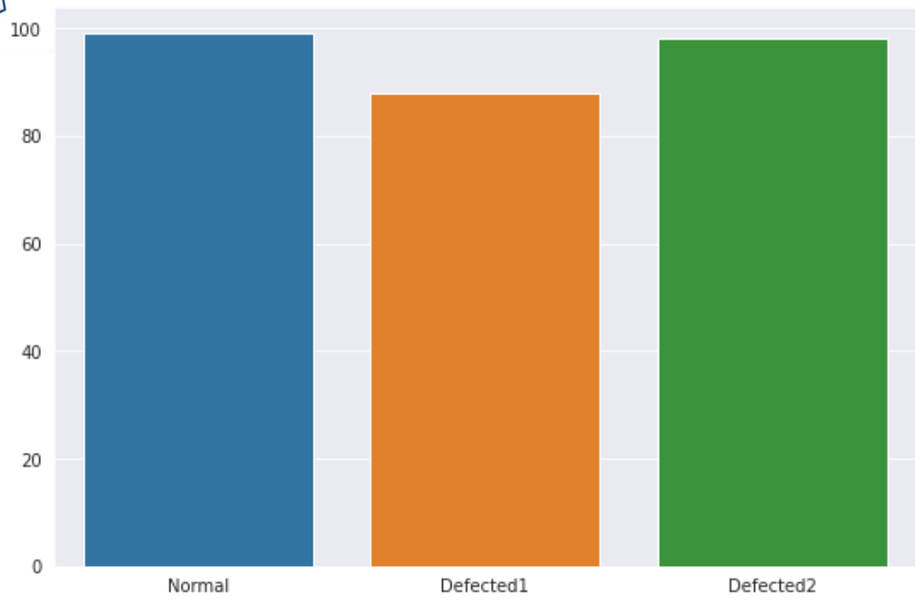
IITD AIA-FSM GANTT CHART

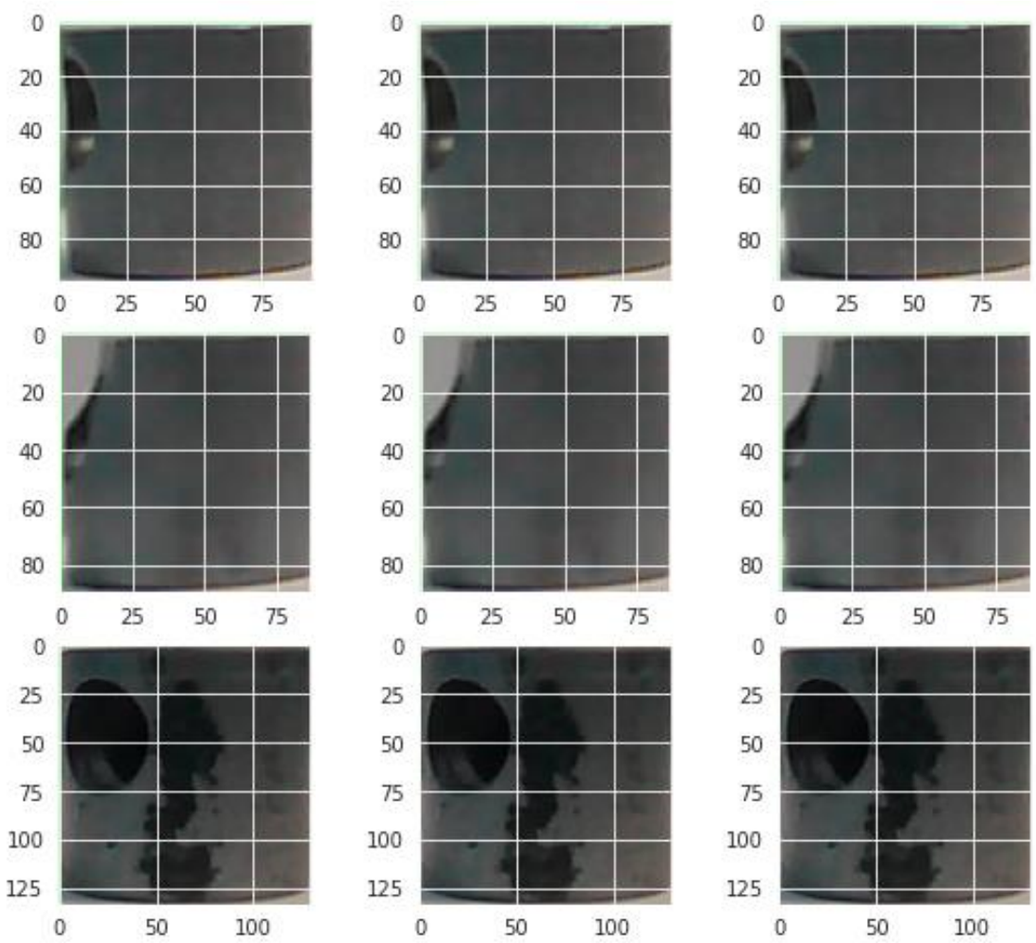
PROJECT TITLE	Piston Defect Detection using Computer Vision
PROJECT MANAGER	Priyal Salecha

	TASK TITLE	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
		PHASE ONE			
		WEEK 1		WEEK 2	WEEK 3
		M T W R F	M T W R F	M T W R F	
1	WEEK 1				
1	Understanding problem statement	6/9/23	6/10/23	1	100%
2	OpenCV	6/9/23	6/13/23	4	80%
3	Deep Learning Techniques	6/10/23	6/12/23	2	70%
4	Computer Vision basic	6/11/23	6/13/23	2	90%
5	Pandas and Scikit Learn	6/12/23	6/14/23	2	80%
6	TensorFlow	6/13/23	6/15/23	2	70%
7	Pytorch	6/14/23	6/15/23	1	70%
8	Dataset preprocessing	6/14/23	6/17/23	3	80%
9	Image Processing	6/16/23	6/22/23	6	60%
10	Data Visualisation	6/21/23	6/24/23	3	50%
11	Model Selection and Training	6/26/23			
12	Model Evaluation	6/26/23			
11	Cloud Computing	6/27/23			
12	Final Report making				

PHASE TWO			PHASE THREE			PHASE FOUR		
WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
M T W R F	M T W R F	M T W R F	M T W R F	M T W R F	M T W R F	M T W R F	M T W R F	M T W R F

Screenshots of development





```
import cv2

# Image acquisition
camera = cv2.VideoCapture(0)  # Use the default camera (change the

# Check if the camera is opened correctly
if not camera.isOpened():
    print("Unable to open the camera")
    exit()

# Read frames from the camera
ret, frame = camera.read()

# Check if the frame is read correctly
if not ret:
    print("Unable to read frame from the camera")
    exit()

# Release the camera
camera.release()

# Preprocessing
# Convert the image to grayscale
gray_image = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
```

es.jpg

Thank You

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