Project Initialization and Planning Phase

Date	15 july 2024
Team ID	SWTID1720108643
Project Title	Garment Worker Productivity Prediction
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	This project aims to develop and implement a machine learning model capable of accurately predicting garment worker productivity. This will empower garment manufacturers to optimize production processes and ensure worker well-being.
Scope	• Developing a model that analyzes historical production data to identify factors influencing worker output. • Training and evaluating the model for accurate productivity prediction. • Designing a user-friendly interface for easy access and utilization of the model's predictions.
Problem Statement	
Description	Currently, garment manufacturers rely on intuition or basic metrics to estimate worker productivity. This approach overlooks crucial factors like fatigue, lighting conditions, or equipment malfunctions, leading to: • **Unidentified influences:** Missing key factors impacting worker performance. • **Suboptimal working conditions:** Difficulty in identifying areas for improvement in work environments and training programs.

	• **Inefficient workforce management:** Inability to accurately predict worker productivity, resulting in underutilized potential or production delays.
Impact	These challenges hinder production efficiency and worker well-being. Inaccurate predictions lead to: • Reduced profits for manufacturers. • Frustration for managers struggling to meet production goals. • Potential worker dissatisfaction due to suboptimal working conditions.
Proposed Solution	
Approach	This project will address these concerns by developing a machine learning model based on historical data. The model will: • Analyze data on worker output, environmental factors, and production details. • Identify key patterns and relationships influencing worker productivity. • Learn to predict future productivity based on these insights.
Key Features	• **Accuracy:** The model will be rigorously trained and tested to ensure high accuracy in predicting worker productivity. • **Interpretability:** We will employ techniques to explain the rationale behind the model's predictions, fostering trust and informed decision-making. • **User-friendliness:** A user-friendly interface will allow garment manufacturers to easily access the model's predictions without requiring technical expertise. • **Privacy and Security:** The model will adhere to data privacy and security regulations to ensure the protection of sensitive worker information.

Resource Requirements

Resource Type	Description	Specification/Allocation

Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB with SSD
Software		
Frameworks	Python frameworks	Flask for deployment
Libraries	Additional libraries	escikit-learn, pandas, numpy,seaborn,matplot
Development Environment	IDE, version control	Jupyter Notebook, Git, google colab
Data		
Data	Source, size, format	Kaggle dataset containing 1196 workers data in csv file.