Project Initialization and Planning Phase

Date	20 July 2024
Team ID	SWTID1720163161
Project Title	Hydration Essentials: Classifying Water Bottle Images
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	Develop a Convolutional Neural Network (CNN) model for accurately classifying various types of water bottles based on the levels of water in it.
Scope	This solution involves training and implementing a CNN model that analyzes images of water bottles to reliably classify them based on the water level, aiming to streamline classification processes and improve product traceability.
Problem Statement	
Description	Our CNN model will utilize advanced deep learning techniques to classify water bottles based on the water level visible in the images.
Impact	Implementing this CNN-based solution is poised to enhance classification accuracy, ensuring precise categorization of water levels in bottles. This innovation meets consumer expectations for product quality and provides manufacturers and retailers with reliable data for informed decision-making.
Proposed Solution	
Approach	Our approach leverages a CNN model tailored for water level classification, utilizing deep learning to analyze images of water

	bottles. This method surpasses traditional visual inspection by automating the classification process with high accuracy and consistency.
Key Features	This CNN model excels in feature extraction from water bottle images, enabling precise multi-class classification based on water levels: half, full, or overflow.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	e.g., 2 x NVIDIA V100 GPUs
Memory	RAM specifications	e.g., 8 GB
Storage	Disk space for data, models, and logs	e.g., 1 TB SSD
Software		
Frameworks	Python frameworks	e.g., Flask
Libraries	Additional libraries	e.g., tensorflow
Development Environment	IDE, version control	e.g., Jupyter Notebook, Git
Data		
Data	Source, size	e.g., Kaggle dataset