Project Initialization and Planning Phase

Date	10 June 2024
Team ID	SWTID1720158677
Project Title	SportSpecs: Unraveling Athletic Prowess With Advanced Transfer Learning For Sports.
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 high-accuracy deep learning model using transfer learning to classify sports activities based on images. The model will be trained on a dataset with labeled images from hundred different sports classes: cricket, wrestling, tennis, badminton, soccer, swimming, volley ball etc. The system should be capable of real-time classification and be deployed as a web application using Flask.
Scope	The project will involve data preparation, model development using transfer learning, training and fine-tuning the model, optimizing for real-time performance, and deploying the model as a web application. The dataset includes images from seven sports classes, and the final application will allow users to upload images for real-time classification.
Problem Statement	
Description	There is a need for an efficient and accurate system to classify sports activities from images in real-time. Existing solutions may lack the accuracy or speed required for practical applications.
Impact	Solving this problem will enable better analysis and understanding of sports activities, which can be beneficial for sports training, broadcasting, and analytics.

Proposed Solution	
Approach	Utilize transfer learning with a pre-trained model (e.g., VGG16, VGG19, etc) to develop a high-accuracy classifier. Fine-tune the model on the provided dataset, optimize it for real-time performance, and deploy it as a web application using Flask.
Key Features	➢ High accuracy in classifying seven different sports activities. ➢ Real-time classification capability. ➢ User-friendly web application for image upload and classification. ➢ Efficient model optimized for performance.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask, Keras
Libraries	Additional libraries	Numpy, Pandas, tensorflow
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle dataset,445 mb, 15000 images