Project Design Phase-I
Solution Architecture

Date	8th November 2023
Team ID	Team-591817
Project Name	Transfer learning for identifying the sports
Maximum Marks	4 Marks

Solution Architecture:

Building a solution architecture for **"Transfer learning for identifying the sports"** involves multiple components and steps. Here is a high-level architecture to guide you through the process:

Data Collection:
Gather a large dataset of sports videos labeled with the corresponding sport. Ensure the dataset includes a diverse range of sports, variations in video quality, lighting conditions, and camera angles.

Data Preprocessing:
Clean and prepare the video data for processing. This may involve converting video formats, normalizing frame sizes, and extracting relevant video segments.

Transfer Learning Model Selection:
Choose a pre-trained deep learning model that has been successful in image classification tasks, such as VGG, ResNet, Inception, or EfficientNet.

Feature Extraction:
Freeze the pre-trained model's initial layers to prevent them from being retrained. For the specific sports classification task.

Model Training:
Train the modified model using the preprocessed data. Fine-tune the hyperparameters, such as learning rate, batch size, and number of epochs, to achieve optimal performance.

Model Evaluation:
Evaluate the trained model on a separate validation dataset to assess its performance metrics, such as accuracy, precision, recall, and F1-score.

Model Deployment:
To enable real-time sports recognition, save the trained model and incorporate it into a production environment, like a web application or a mobile app.

Example - Solution Architecture Diagram:

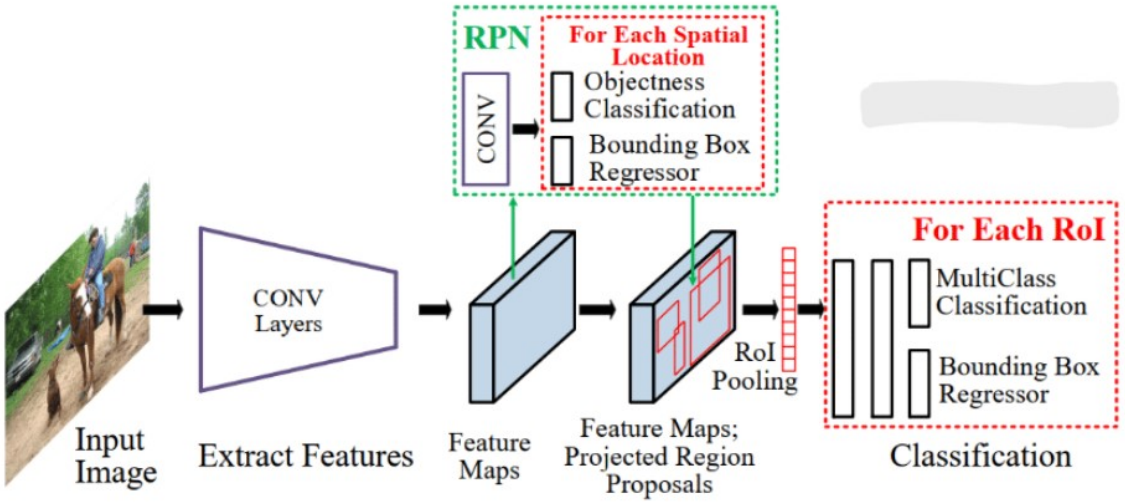

Figure 1: Architecture of Transfer learning for identifying the sports Using Deep Learning