

CS5543 Real -Time Big Data Analytics
Project Report 1
Read Video

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- **Project Objectives**

Significance

To maintain a track record of each player and describe the swimming style. As many people are not aware of various swimming styles and the basic rules of swimming its being difficult to understand the swimming videos. So we would like to come up with an approach describing the swimming style of each player and maintaining track record of each player.

Features

- 1) Identifying the key frames
- 2) Creating highlighted video
- 3) Maintaining track record of the player
- 4) Recognizing swimming style

- **Approach**

Data Sources: Youtube, TRECVID

Analytic Tools: Spark and Storm

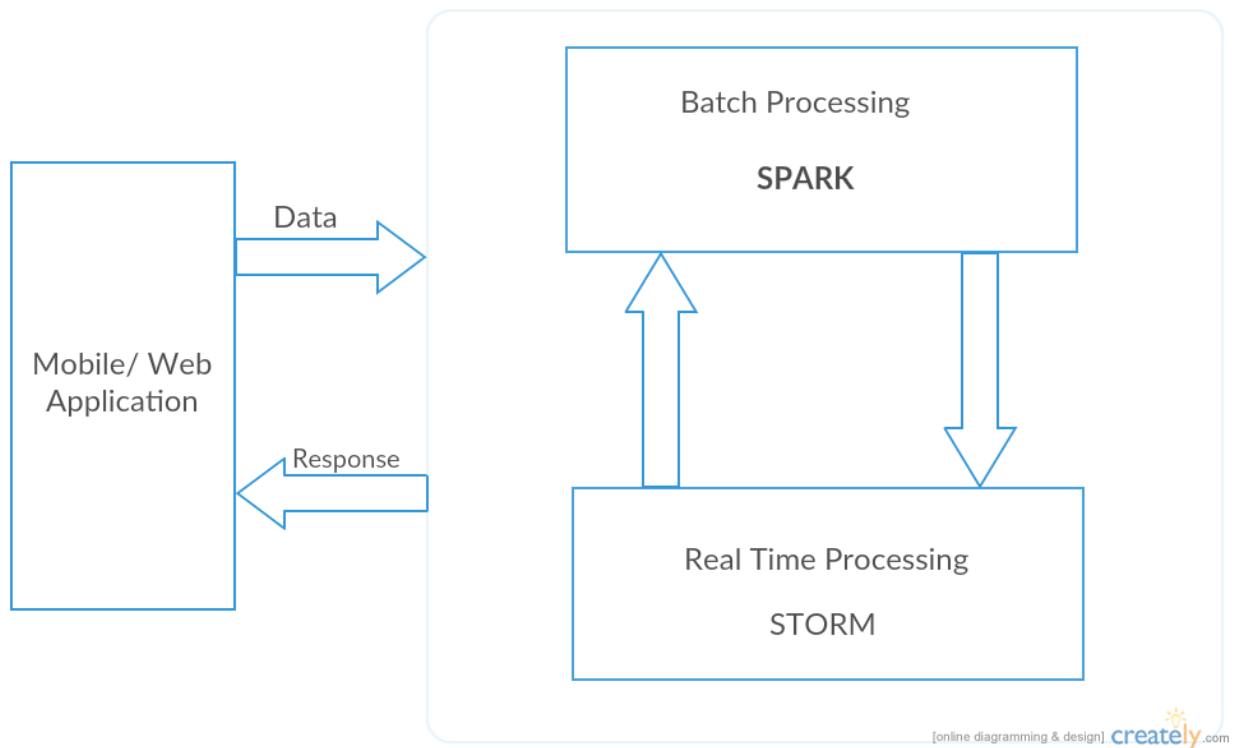
Analytical Tasks: Processing each and every frame individually, tracking each player in Storm Bolt.

Expected Input: Swimming Video

Expected Output: Mainframes, swimming style, highlighted video, track record of each player.

- **Application Specification**

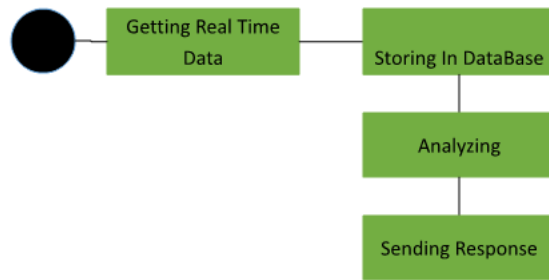
Software Architecture:



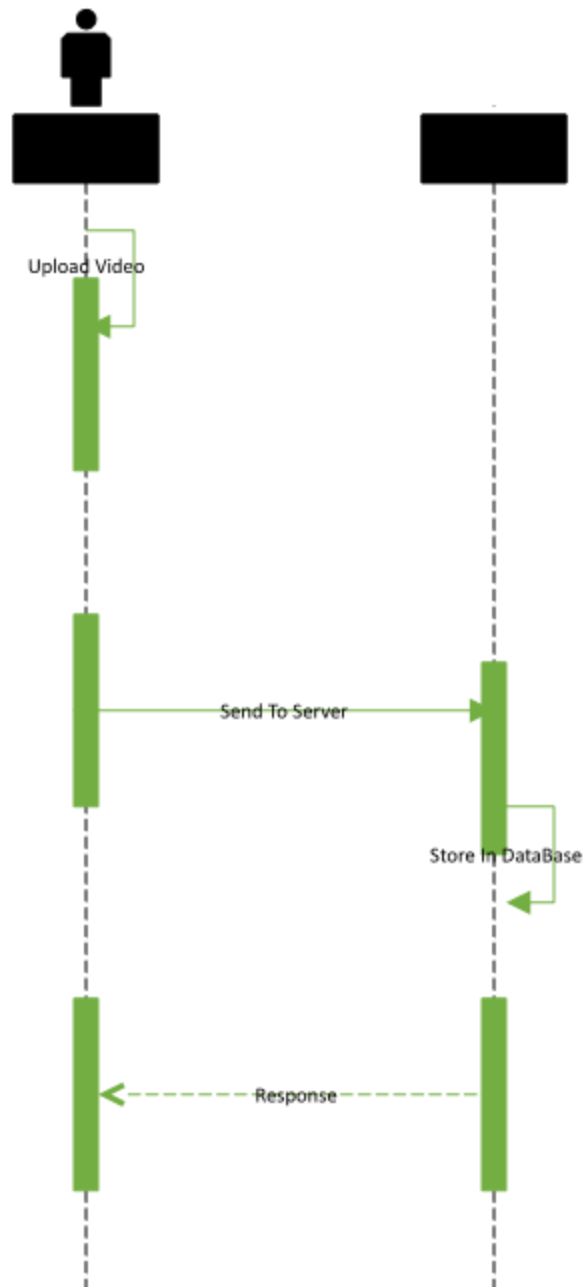
Technologies:

- 1) Android (Mobile Application)
- 2) Spark (Batch Processing, Model)
- 3) Storm (Real Time Streaming)
- 4) Kafka (Communication)

Activity Diagram:



Sequence Diagram:

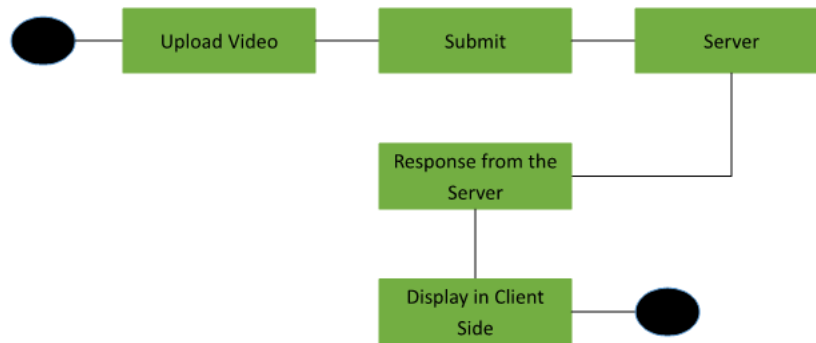


Operation Specification

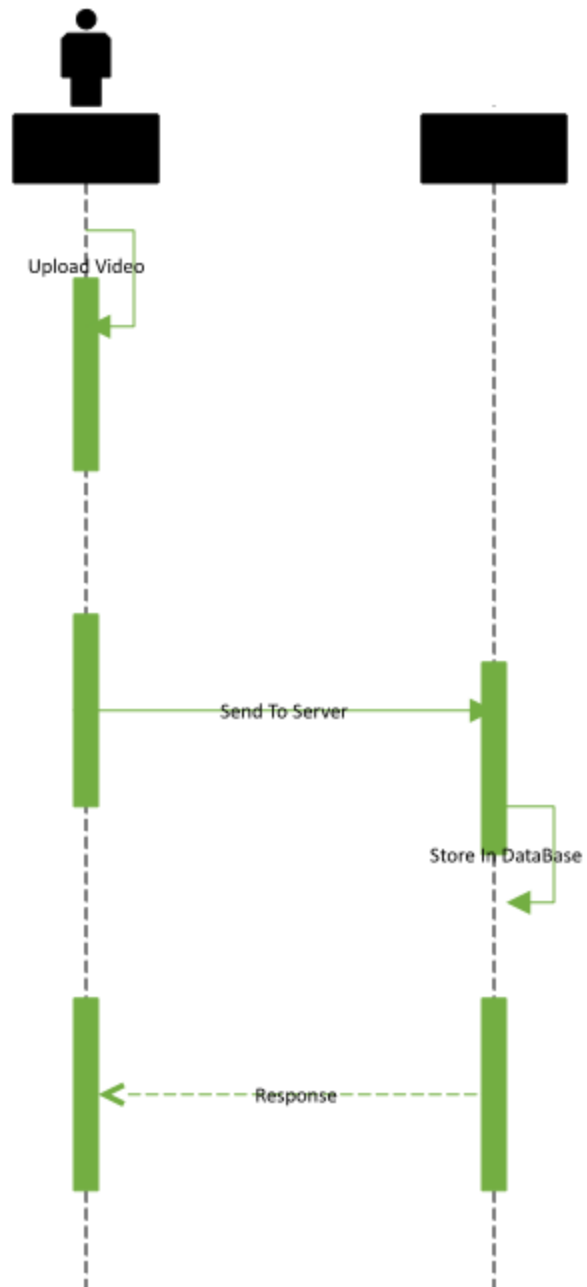
Input: Video

Output: Text Description, Video

Activity Diagram:



Sequence Diagram:



- Documentation

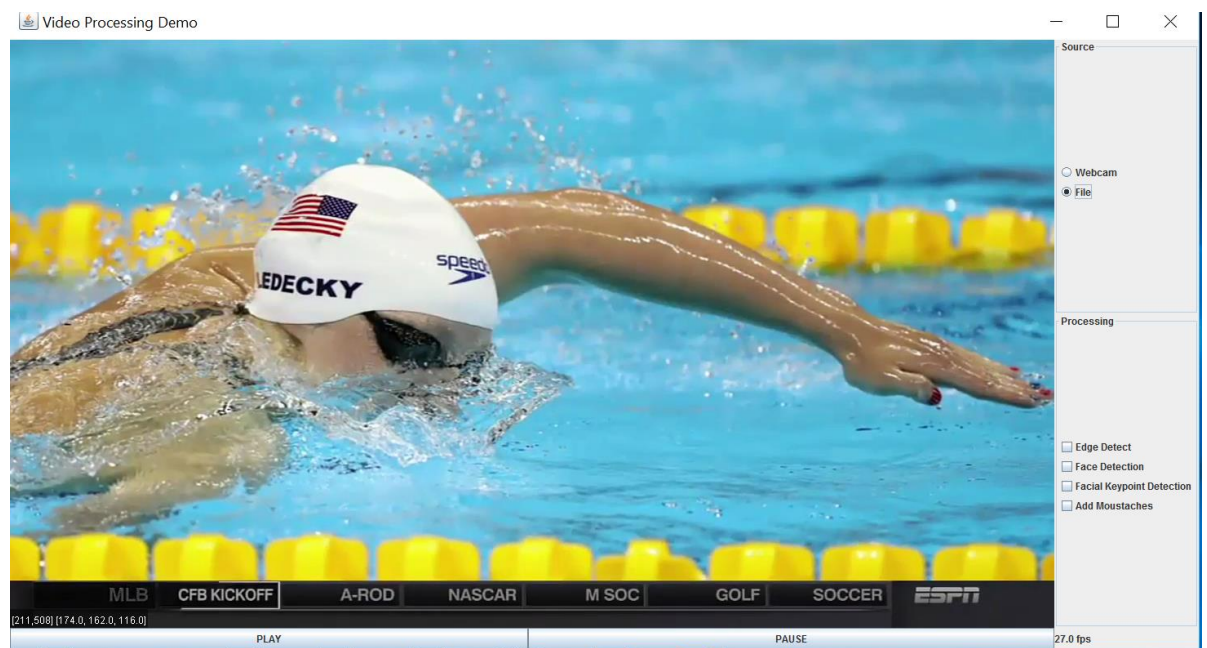




water
bird
wildlife
swimming
nature



bird
nature
wildlife
grass
animal




Video Processing Demo

Setting the Pace

Progression of Women's 400M Freestyle World Record Since 2009

Sun.	Katie Ledecky	3:56.46
2014	Katie Ledecky	3:58.37
2014	Katie Ledecky	3:58.86
2009	Federica Pellegrini	3:59.15
2009	Federica Pellegrini	4:00.41
2009	Joanne Jackson	4:00.66



Ledecky

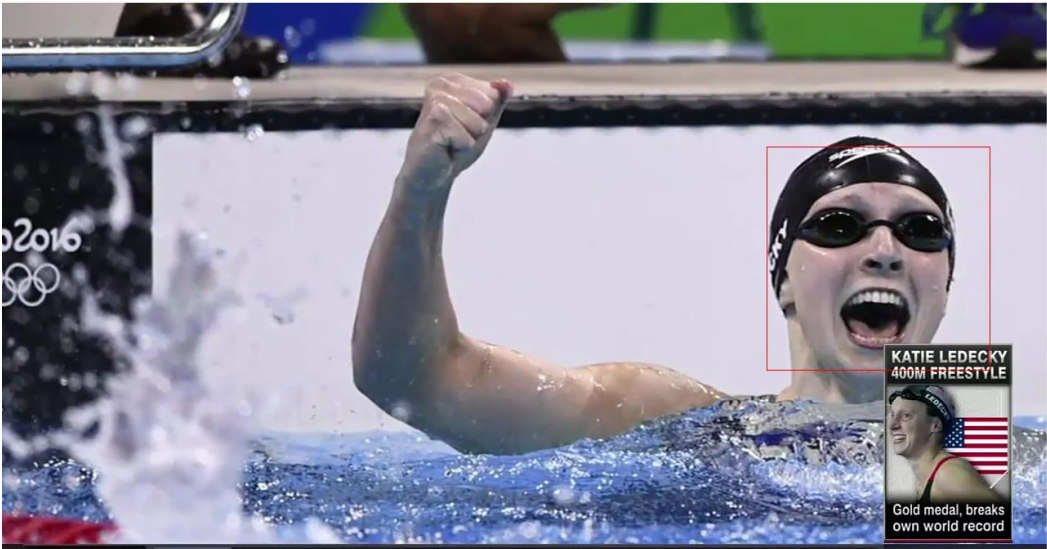
A-ROD [73,71] [247,0, 247,0, 247,0]

PLAY PAUSE 3.2 fps

Source: Webcam, File

Processing: Edge Detect, Face Detection, Facial Keypoint Detection, Add Moustaches

Video Processing Demo



KATIE LEDECKY
400M FREESTYLE

Gold medal, breaks own world record

CFB KICKOFF 25 DAYS led his iconic pose after a 93-yd punt return TD vs rival Ohio State. Mi

[219,519] [212,0, 211,0, 232,0]

PLAY PAUSE 5.1 fps

Source: Webcam, File

Processing: Edge Detect, Face Detection, Facial Keypoint Detection, Add Moustaches

- **Project Management**

Plan:

Increment 1: Key Frame Detection and Object Tracking

Increment 2: Client side UI

Increment 3: Working with Storm and Spark

Increment 4: Communication between client and server

Work Completed: For the first increment we completed finding key frames in a given video. We were also able to track an object and find the matching features for a given model.

Responsibility: Both of us have divided the tasks equally and worked on it. At the end of each task we shared our knowledge in that task.

Contributions: Both of us worked on all the tasks equally.

Akhilesh Gattu: 50

Latha Muddu: 50

Work to be Completed:

For the upcoming increments the primary task that needs to be completed is the client side development, then the server side development and at the end integrating both the client and server implementations.

- **Submission & Deployment**

Github Link:

<https://github.com/AkhileshGattu/Read-Video/tree/master/Source>