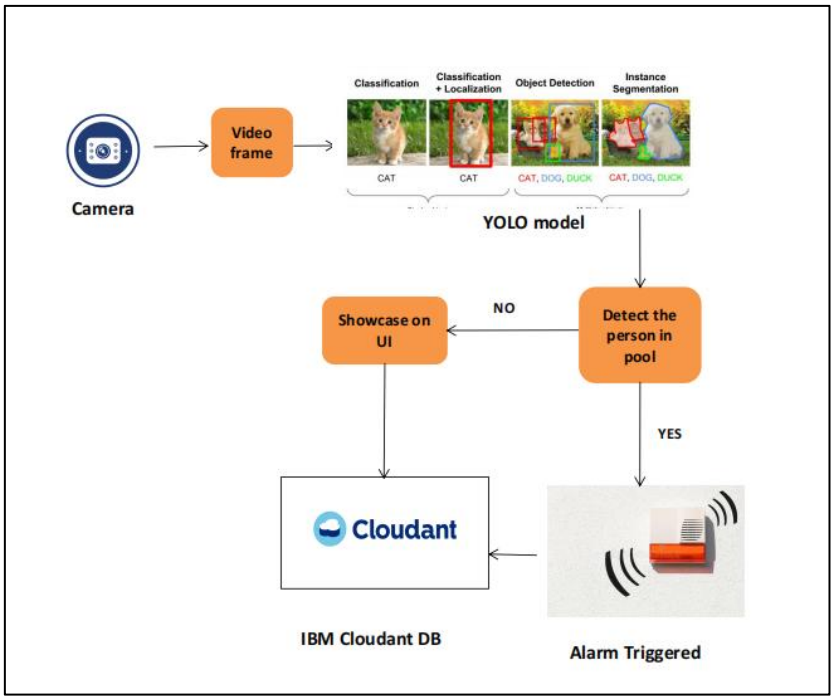
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	15 October 2022
Team ID	PNT2022TMID30291
Project Name	Virtual Eye – Life Guard For Swimming Pools To Detect Active Drowning
Maximum Marks	4 Marks

Technical Architecture:



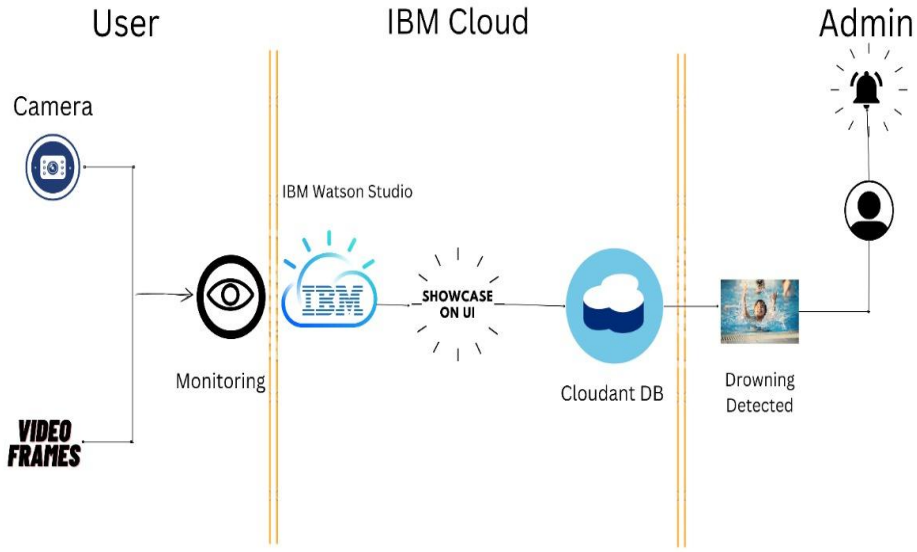


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI or Website	HTML, CSS, JavaScript / React JS
2.	Application Logic-1	Model building and training	Python
3.	Application Logic-2	Getting Video frame from user for prediction	IBM Watson STT service
4.	Application Logic-3	Fetch the relevant data from the database and project them to user	IBM Watson Assistant
5.	Database	Video frame or Image data of the swimmer's body movements	MySQL/NoSQL
6.	Cloud Database	Fetch data from database and feed them to model for prediction and also used to retrieve the data required for user.	IBM DB2, IBM Cloudant etc.
7.	File Storage	Image data, login credentials and API keys	IBM Block Storage
8.	External API-1	To get the data from the database when swimmers in the pool	IBM Storage API
9.	External API-2	To get the username and password	Authentication API, etc.
10.	Deep Learning Model	To predict the drowning people through the video input	Image Recognition Model, YOLOv7 model.
11.	Infrastructure (Server / Cloud)	Application Deployment on Cloud Server	Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Anaconda open source framework	Python
2.	Security Implementations	Computer vision based monitoring system	Artificial Intelligence
3.	Scalable Architecture	To scale our system software on the server side by supporting clients	IBM Auto Scaling
4.	Availability	24/7 monitoring system	IBM Cloud load balancer
5.	Performance	Designing the system software that can monitor a wide range of swimming pool at a time without any delay and to provide accurate predictions	IBM instance