**Project title:** [Traffic management system ]

**DATA MANAGEMENT PLAN**

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**Problem statement:** the rate of road accidents has increased to a large extent over the last few years with the rapid advancement of the automobile number booming, and there is always a missing or inaccurate data about accidents details (number, time, the location).

**Project objective:** Ramallah city in is equipped with video surveillance cameras installed on different roads and highways, and in this project we will implement a smart traffic monitoring system using artificial intelligence and deep learning tools,and the implemented system will be able to achieve the following :

* Measuring the real time of traffic parameters to insure a fluid traffic and avoid accidents.
* Adaptive control: the system provide a real data about the traffic statues for the decision makers to let them managed the traffic systems depends on real data , they will make a better decisions about adjustments to systems including traffic lights, on-ramp signalling, and bus rapid transit lanes.

**Data description**: the proposed data is a collection of labelled pictures of car crash and non-accidents, in various weather states.

**Dataset collection**: the data is collected from videos by dashboard-mounted cameras in Ramallah streets, videos are gathered in different cases (early morning, evening, rainy weather, fog weather).

**Dataset features:**

1-videos: frames that are extracted from videos

2- Labels: photos will be labelled (accidents and non-accidents)

3- Time: at which time the frame has been extracted.

4-Location: the defined location (the name of the streets that the frames are extracted in)

**Metadata**:

**Training dataset** : images of car crash, in various weather states were labelled to train the YOLO algoritm on it . images are gathered in different cases (early morning, evening, rainy weather, fog weather).

**Input Dataset**: the data is images from videos by dashboard-mounted cameras in Ramallah streets, **Format**: the format of input videos is .mp4 Memory size: (4-5)MB for each video

**Output data**: an hourly report that saved in a data base

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# Determine output/ deliverable

the system will give the following outputs :

Camera location, time, date, day, number of car each hour, accidents.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| camera name | time | date | day | number of cars | number of car accidents |
| Mun Cam | 12:00 AM | 10/12/2021 0:00 | Tuesday | 205 | 0 |
| Mun Cam | 1:00 AM | 10/12/2021 1:00 | Tuesday | 145 | 0 |
| Mun Cam | 2:00 AM | 10/12/2021 2:00 | Tuesday | 98 | 0 |
| Mun Cam | 3:00 AM | 10/12/2021 3:00 | Tuesday | 64 | 0 |
| Mun Cam | 4:00 AM | 10/12/2021 4:00 | Tuesday | 73 | 0 |
| Mun Cam | 5:00 AM | 10/12/2021 5:00 | Tuesday | 120 | 0 |
| Mun Cam | 6:00 AM | 10/12/2021 6:00 | Tuesday | 296 | 0 |
| Mun Cam | 7:00 AM | 10/12/2021 7:00 | Tuesday | 498 | 0 |
| Mun Cam | 8:00 AM | 10/12/2021 8:00 | Tuesday | 527 | 0 |
| Mun Cam | 9:00 AM | 10/12/2021 9:00 | Tuesday | 696 | 0 |
| Mun Cam | 10:00 AM | 10/12/2021 10:00 | Tuesday | 827 | 0 |
| Mun Cam | 11:00 AM | 10/12/2021 11:00 | Tuesday | 888 | 0 |

**Data accessibility:**

The accessibility to the traffic management system will require a username and user password and IP number.

**Data security**

Ensuring information privacy and security in traffic management system is essential for all involved people, transit agencies, government, and so on. Since the data may contain personal information and can track people and vehicles,

Ensuring information privacy and security in Traffic management system is essential for all involved people, transit agencies, government, and so on. data may contain personal information and can track people and vehicles, several requirements need to be satisfied.

* Verification of data consistency checks the legality and consistency of messages to avoid messages with malicious data.
* Availability ensures continuous operation of the system even under attacks (e.g. DoS by jamming).
* Real-time constraints focus on maintaining communication and efficient computing even with the usage of security techniques. Authentication legitimizes messages.

Furthermore, the new trend of using cloud computing with TMS increases the complexity for providing

security to the system, because the inherent security problems in cloud computing are also added to TMS.