ii. The system lacks adaptive intelligence to track the driver's behavior

iii. Prediction inaccuracy due to poor data collection

Below is the dataset table a sample size of 10 self -volunteered drivers was used as the primary source of data collection.

Table1- The drowsy driver data table (single data class)

DATASET	**DATA CLASS**				
S/N of drivers	**Yawing**	**Frequent eye blinking**	**Heads down**	**Eye closed (sleep)**	**Eyes open**
1	300	100	100	20	300
2	300	100	100	20	300
3	300	100	100	20	300
4	300	100	100	20	300
5	300	100	100	20	300
6	300	100	100	20	300
7	300	100	100	20	300
8	300	100	100	20	300
9	300	100	100	20	300
10	300	100	100	20	300
Total frames	3000	1000	1000	200	3000

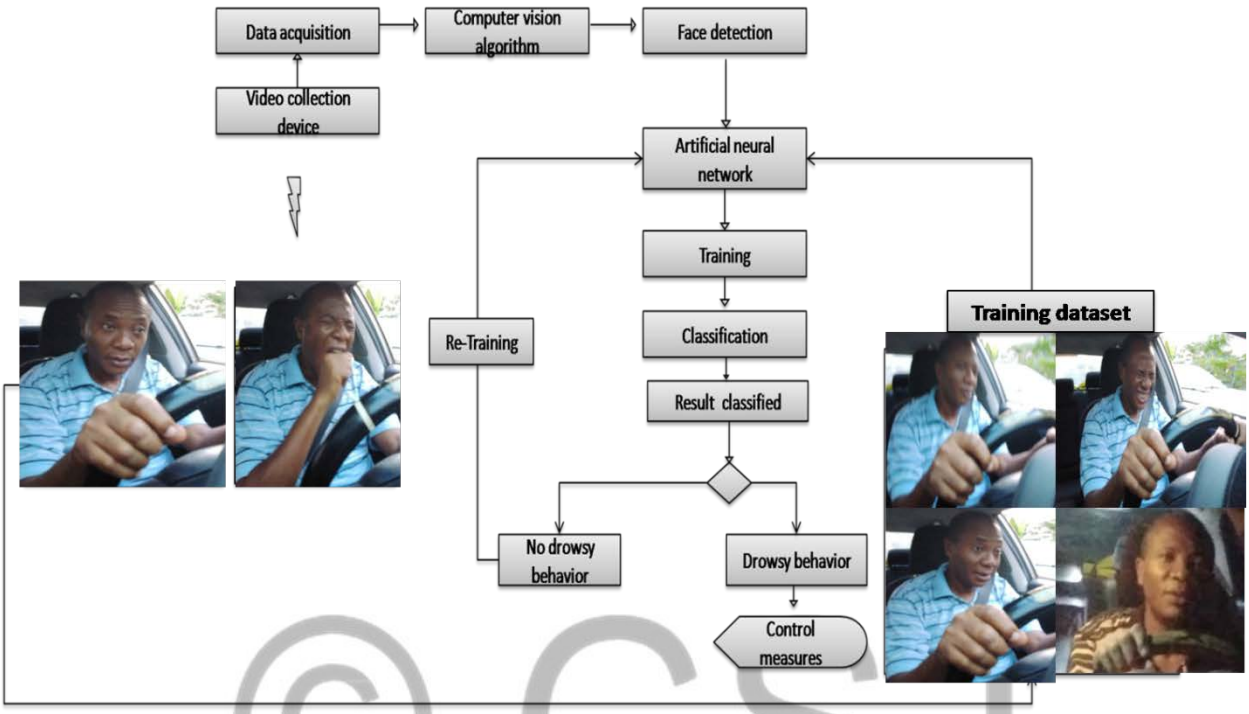
From the above table we can see that the data classes are all arranged as one data class, when this is implemented in the monitoring system it will bring about alerts or alarm for minor drowsy signs or even non drowsy signs, which on normal situations should not be.

In order to cub this issue of false alerts, there is a need to get a more structured system where the datasets are well organized and categorized so as to give the required and expected outcome.

Analysis of the Proposed System

The proposed system will be developed using computer vision based artificial intelligence technique to help address the challenges identified in the existing system. From the existing system analysis it was observed that the accuracy of the system is highly dependent on the

quality of data collection and also the intelligence of the classification approach, hence this paper proposed an adaptive image acquisition algorithm which will ensure intelligent data collection of the driver's behavior and classify drowsiness.



Results and Discussion.

Data will be collected in video format and used to develop the training dataset to learn the artificial intelligence technique of the drowsy reference model process and functionalities. Which is shown on tables 2

Table2: The drowsy driver data table (several data classes)

DATASET	DATA CLASSES				
	Minor drowsy signs		Critical drowsy signs		No Drowsy
S/N of drivers	Yawing	Frequent eye blinking	Heads down	Eye closed (sleep)	Eyes open
1	300	100	100	20	300
2	300	100	100	20	300
3	300	100	100	20	300

4	300	100	100	20	300
5	300	100	100	20	300
6	300	100	100	20	300
7	300	100	100	20	300
8	300	100	100	20	300
9	300	100	100	20	300
10	300	100	100	20	300
Total frames	3000	1000	1000	200	3000

The table 2- present the 820 video data collected for each driver in the three classes as shown and were combined to design the training dataset consisting of 82000 video frames, with 1200 frames representing data of critical drowsy attributes and 4000 frames representing data of minor drowsy attributes and the remaining 3000 video from normal driving without drowsiness. The 82000 videos of five seconds each is therefore 12300000 images classified into three classes and stored. Some of the data in each class are presented as below;

Figure 3.3: Minor drowsy class

Figure 3.4: Critical drowsy class

Figure 3.5: No drowsy class

Form the table and images, it can be seen that the data collected in the second table showed a clear categorization of the of each data class as – i. Non Drowsy, ii.Critical Drowsy. iii. Minor Drowsy

Conclusion and Recommendation

From the two processes described above it can be deduced that improver categorization of the drowsy driver attributes can lead to a false alert or alarm and this is not good for a control or monitoring system, so with the new proposed system a more organized format was used to streamline the attributes in order to get a positive alert or results.
It's recommended for further study that deep generative model should be used in further study to automatically generate and improved the training dataset

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