**PROBLEM STATEMENT:**

With the advent of modern technology known as Machine Learning, the quality of education and school management is making huge strides forward in different parts of the world. However, school administration in our part of the world has failed to make full use of this technology. Therefore, the quality of students that we produce are unable to properly compete in the world market.

Most school administration in Ghana relies on conventional means. More specifically, each administrator holds on tight to their beliefs and makes subjective decisions. Though this might have worked somewhat in the past, the world today is more data-driven. The success of a particular institution can be said to depend on how well it learns from past experiences, or more technically, how well it is able to make use of historic data.

**Research Objectives:**

1. Exploring: Efficient ways to collect relevant information for predictive analysis
2. Investigation: What aspects of a student or their environment play major roles in their academic performance

**GENERAL OBJECTIVE:**

We aim to improve educational standards through innovative technology solutions and proactive interventions. More specifically, with the help of Machine Learning, we seek to find efficient ways of collecting relevant data and use that data to make informed and data-driven decisions.

**SPECIFIC OBJECTIVES:**

Data Collection and Management:

1. Attendance Tracking:

Utilize object detection and facial recognition to instantly mark attendance for students.

We seek to implement a tool that allows teachers to use their phones or any available camera to instantly track attendance simply by directing the camera at the students.

Ideally, this tool should:

-Work even with cameras of very low resolutions

- Quickly detect, identify and mark student attendance with as little delay as possible in between. (a maximum of 10 seconds to complete).

- Accurately identify students with close to zero false mistakes.

1. Student Emotion Tracking:

Utilize a model that has been trained to detect emotions such as happiness, sadness, anger from the facial expression of people to monitor students' emotional status during teaching. This tool should work in real-time and keep collection data on each student and eventually calculate some engagement index at the end of a lesson. There should be very little to no lagging between frame captures

1. Student Management:

Centralized storage for all student information using application's database. The application would also provide an interface to observe and make edits to student information.

This interface should be clear and easy to use. More relevant features should be easily noticed on page load and making edits should be as easy as selecting the value for a particular feature.

1. Staff Management:

Centralized storage and management for teachers and other staff members.

1. Finance Management:

Record keeping of the school’s finances and transaction history. As well as a feature that allows for budget allocation and tracking.

Features:

- automatic deduction of predetermined expenses such as salaries and indicate the funds available for spending.

- Statistical financial information, such as average expenditure per term as well as analysis breakdown on the various fields spent on such as average expenditure per infrastructural improvement.

such data can be used to give more insights into secrets behind school's performance.