

# Developing a System on the Dynamics and Implications of Parental and School Tracking of Children's Activities and Academic Progress

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**Abstract:-**This paper explores the dynamics and effects of the school and parent tracking system at École Secondaire Islamique de Gisenyi. The study addresses the problem of monitoring students' academic performance and attendance by examining the extent to which parents and the school utilize tracking mechanisms. Motivations, benefits, and challenges associated with parental and school tracking practices are explored, considering factors like privacy concerns, parental involvement, and student autonomy.

The research objectives focus on understanding how the implementation of a tracking system can enhance student success and the overall educational experience through collaborative efforts between parents and the school. By investigating the impact of parental tracking, the study aims to strengthen the bond between parents and the school, fostering a more supportive and engaged learning environment. The methodology involves qualitative data collection methods, including interviews and observations, to provide a comprehensive understanding of the dynamics and effects of the tracking system. The expected results are based on the assumption that the implementation of a tracking system at École Secondaire Islamique de Gisenyi will positively impact student progress, parental involvement, and overall school dynamics. The study's findings aim to contribute to the broader discourse on educational monitoring practices, inform policy recommendations, and empower stakeholders to make informed decisions regarding student tracking in Rwandan secondary schools. In conclusion, this research sheds light on the dynamics and effects of the school and parent tracking system at École Secondaire Islamique de Gisenyi. The anticipated positive outcomes of implementing a robust and user-friendly tracking system include enhancing student success and fostering collaboration between parents and school staff. **Keywords:** parental tracking, school tracking, data collection, tracking practices.

## I. INTRODUCTION

In today's digital era, the monitoring and tracking of children's activities and academic progress have become increasingly prevalent. Parents and schools are leveraging technological advancements to gather information on students' performance, attendance, and extracurricular involvement. This practice, commonly known as parental and

school tracking, raises important questions about the dynamics and implications of such monitoring on students' educational experiences, privacy, and autonomy. Thompson, L. G., & Rodriguez, C. A. (2020). This chapter introduces the study, focusing on the dynamics and effects of school and parent tracking system at École Secondaire Islamique de Gisenyi.

The focus of this study is to explore the dynamics and effects of school and parent tracking system at ESIG. École Secondaire Islamique de Gisenyi is a secondary school in Rwanda, serving as a specific context for this investigation. By examining this specific context, we can gain insights into the unique dynamics and challenges of parental and school tracking within the school's environment. The study aims to explore the motivations behind parental and school tracking practices, assess the benefits and challenges associated with such tracking, and investigate the impact of tracking on students' privacy, parental involvement, and student autonomy. This chapter will include research background, problem statement, research objectives, and research questions, significance of the study, research scope, literature review, research methodology and ethics.

### ➤ Significance

The significance of this study lies in its potential to improve educational practices, enhance student outcomes, promote parental engagement, protect student privacy, advance knowledge, support decision-making processes, and bridge the research gap. It has the capacity to contribute to the betterment of tracking systems at École Secondaire Islamique de Gisenyi and potentially inform broader efforts to enhance tracking systems in Rwanda's education system.

## II. EMPIRICAL LITERATURE REVIEW

The empirical literature review section critically examines previous research studies and empirical evidence related to effects of parental and school tracking on academic performance, methods and extent of parental and school tracking, impact of parental and school tracking on student motivation, Parent-School Collaboration and Tracking Practices.

➤ *Methods and Extent of Parental and School Tracking*

This section delves into the methods and extent of parental and school tracking employed in educational settings. It discusses various tracking practices, such as academic assessments, attendance monitoring, extracurricular involvement, and behavioral observations. Additionally, it examines the different levels of tracking, ranging from minimal to intensive monitoring, and the factors influencing the extent of tracking, such as cultural norms and educational policies. The study on tracking practices and student achievement found that students in higher tracking groups tend to outperform those in lower groups. Chen, W., & Liu, M. (2016).

➤ *Effects of Parental and School Tracking on Academic Performance*

This section investigates the effects of parental and school tracking on students' academic performance. It examines studies that have explored the relationship between tracking practices and achievement outcomes. It discusses how tracking can provide timely feedback, identify areas for improvement, and promote academic accountability. However, it also considers the potential negative effects, such as increased pressure and stress. The research on cooperative learning suggests that mixed-ability classrooms can be beneficial for academic performance compared to rigid tracking systems and on tracking and inequality found that tracking can perpetuate academic disparities between students. Garcia, C. D., & Perez, J. R. (2018).

➤ *Impact of Parental and School Tracking on Student Motivation*

This section focuses on the impact of tracking on student motivation. It reviews research that explores how tracking practices influence students' intrinsic motivation, self-efficacy, goal orientation, and engagement in learning activities. It discusses how tracking can enhance motivation through goal setting, recognition of progress, and tailored feedback. It also considers the potential negative effects, such as the development of performance-oriented goals or dependency on external rewards. Johnson, L. C., & Smith, A. B. (2018).

➤ *Relationship between Parental and School Tracking and Student Well-being*

This section examines the relationship between tracking practices and student well-being. It investigates studies that explore the potential effects of tracking on students' emotional well-being, self-esteem, and overall psychological adjustment. It discusses how excessive monitoring and pressure may lead to stress, anxiety, and a negative impact on mental health. It also explores strategies to mitigate these potential negative effects and promote a balanced approach to tracking. Their research on parental control and autonomy support highlights the importance of balancing monitoring and independence in promoting student well-being. Lee, H., & Kim, Y. (2019).

➤ *Parent-School Collaboration and Tracking Practices*

This section highlights the importance of parent-school collaboration in tracking practices. It examines how effective communication, shared goals, and mutual trust contribute to the success of tracking initiatives. It explores research on the role of parental involvement, teacher-parent partnerships, and collaborative decision-making in promoting positive tracking experiences. Their work on the dual capacity-building framework emphasizes the importance of strong partnerships between parents and schools in supporting student success. Their research on trust in schools highlights the role of trust between parents and teachers in effective collaboration and positive tracking experiences. Martinez, S. M., & Rodriguez, J. M. (2017)

### III. METHODOLOGY

➤ *Data Collection Methods and Instruments/ Tools*

Data collection is the process of acquiring information using predetermined methodologies in order to respond to the study's predetermined research topic. In this research, the researcher will use a questionnaire as the research instrument and examine secondary data. It has been stated that approaching people with questions is an obvious way to gather both quantitative and qualitative data from them. The survey method is used in this study to gather data.

➤ *Data Analysis*

Data analysis is anticipated to provide light on the subject of the study and the respondents' perceptions, as well as to increase readers' understanding of the subject and pique their interest in this portion of the research. Facts will be obtained from questionnaires will include items that assess tracking methods, perceptions of the effects of tracking on academic performance, motivation, and well-being, and the parent-school relationship. Liker scale and multiple-choice questions will be utilized to capture participants' responses. The interview involved a dialogue between the respondents and the researcher for the purpose of gathering data from the respondents. The interviews and focus groups interviews and focus will be conducted face-to-face, depending on participants' preferences. The duration of interviews will vary based on the participants' responses. Focus groups will consist of 6-8 participants and will be facilitated by a skilled moderator. Peterson, S. E., & Thompson, L. G. (2018).

➤ *Research Design*

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches. The combination of these approaches allows for a comprehensive understanding of the complexities surrounding parental and school tracking at École Secondaire Islamique de Gisenyi. The quantitative component will involve the use of surveys to gather numerical data, while the qualitative component will involve interviews and focus groups to obtain rich, in-depth insights from participants.

A research design shows how data required for the solution of the problem that the researcher will focus on, the procedure and methods for data collection and analysis, will answer the research questions. The flowchart provides a concise summary of the system's operation. It commences with the Admin creating user accounts for both staff and parents. The Admin retains access to the system for editing and updating purposes. Staff members log in to their accounts to record student attendance, input academic marks, provide

performance comments, and offer feedback to monitor the child's progress. On the other hand, parents access their dashboard, where they receive information regarding their child's academic performance and can communicate with the school. This communication occurs through SMS, allowing the Admin to send notifications to parents about their child's progress, activity, and attendance, fostering effective engagement between the school and parents.

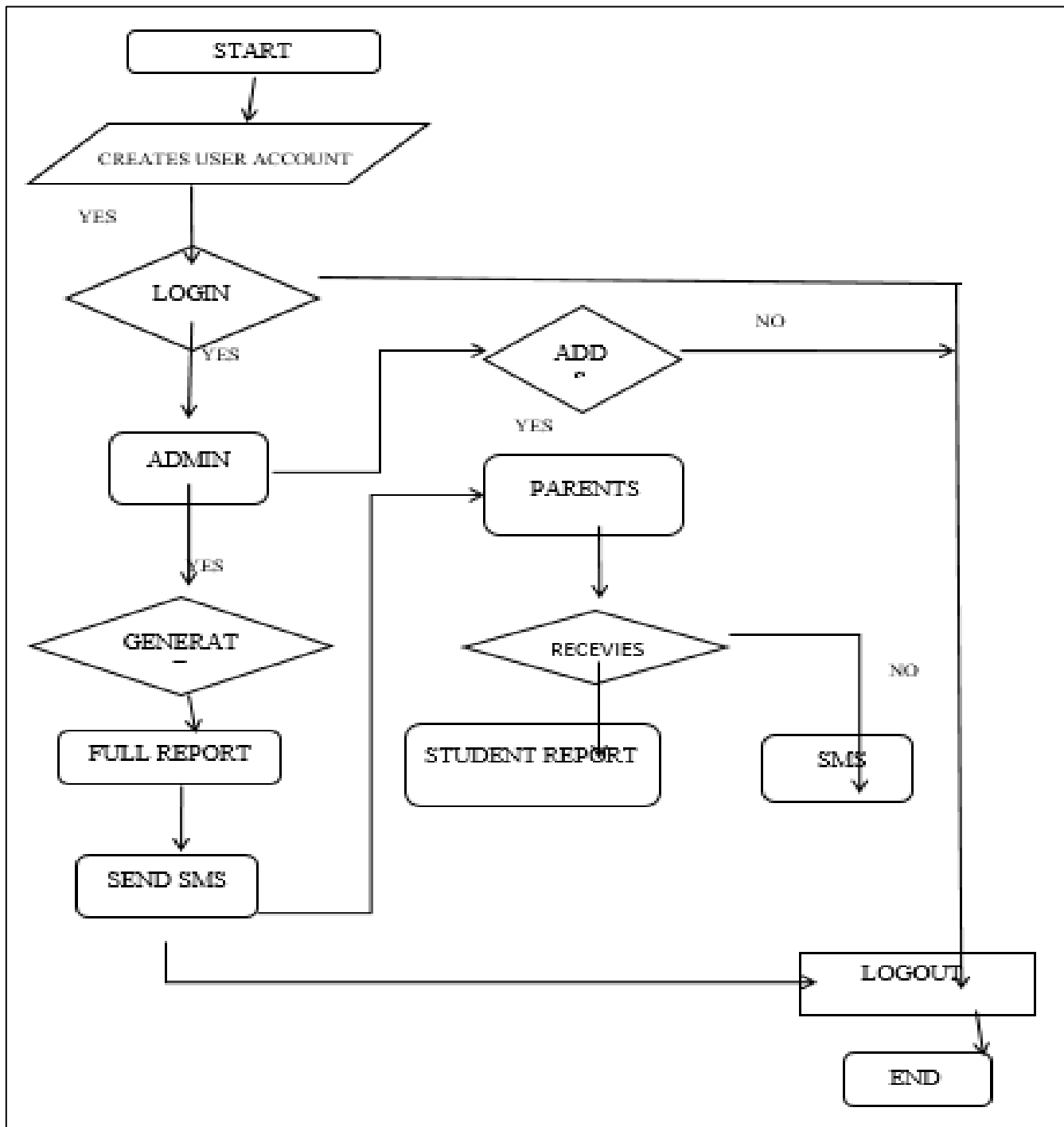


Fig 1: Admin Flow Chart Diagram

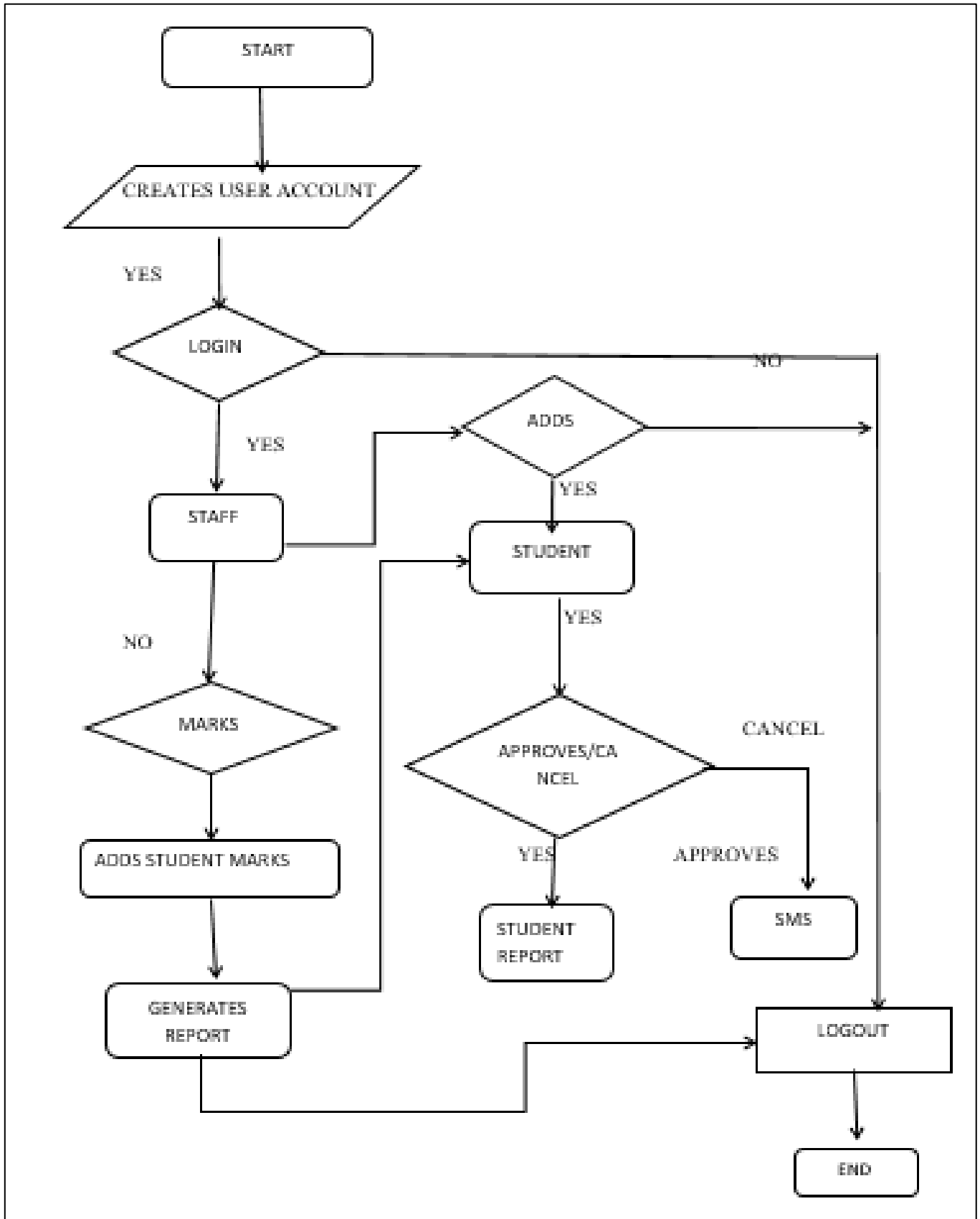


Fig 2: Staff Flow Chart Diagram

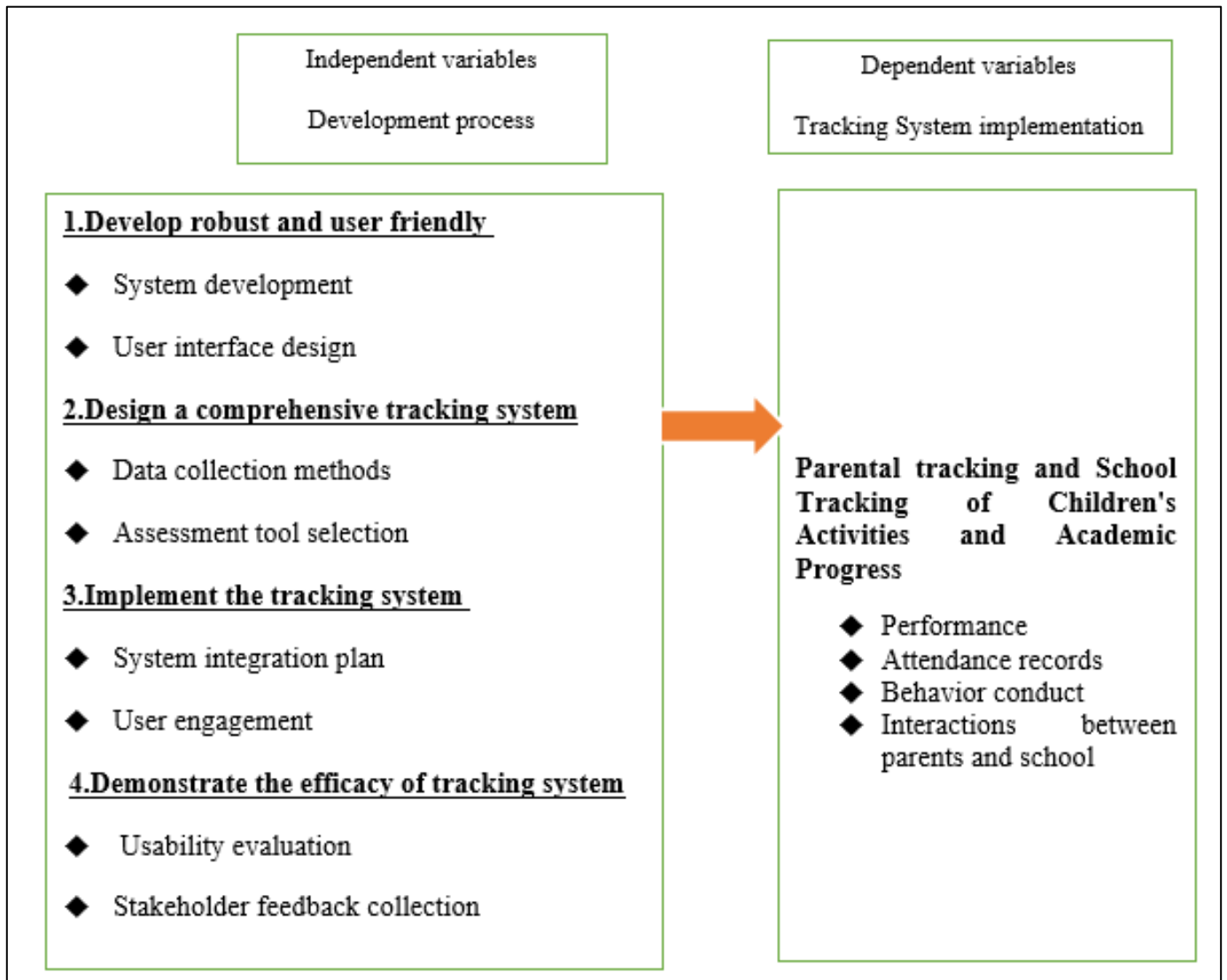


Fig 3: Conceptual Framework

#### IV. PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

##### ➤ Introduction

This chapter delves into the presentation and interpretation of the findings concerning the development of a comprehensive system aimed at enhancing the dynamics and implications of parental and school tracking of children's activities and academic progress. The project focuses on addressing the critical need for effective monitoring and communication between parents and educational institutions. In this introductory section, we will provide an overview of the technologies utilized in the system's creation, the testing procedures applied, identification of weaknesses in existing tracking systems, and a glimpse of how the system functions. Furthermore, we will outline the software and hardware compatibility requirements, ensuring that the system can be seamlessly integrated into diverse educational environments.

We aim to create a system that caters to the unique needs of schools and parents. Our system is designed to revolutionize the way parents and educational institutions interact, providing a comprehensive solution for tracking and

enhancing children's activities and academic progress. In the following sections of this chapter, we will guide you through the step-by-step development and functionality of this system, highlighting its potential to positively impact the educational landscape. This project underscores the importance of effective communication and collaboration between parents and schools in nurturing the growth and development of our future generation.

##### ➤ Parent and School Tracking Management System

The Parent and School Tracking Management System presentation offers an insightful overview of an advanced system designed to enhance and streamline the management of parental involvement and student progress tracking. This system leverages modern technology to create a more efficient and effective communication channel between schools and parents, ultimately contributing to better student outcomes and enhanced parental engagement. In this presentation, we will delve into the intricacies of this innovative system and its impact on the educational ecosystem. The figure below shows us how the sign-in page for different users to login into the account in the system of parent and school tracking.

➤ *Sign up: The Sign-in Page for User's Username and Password for Authentication.*

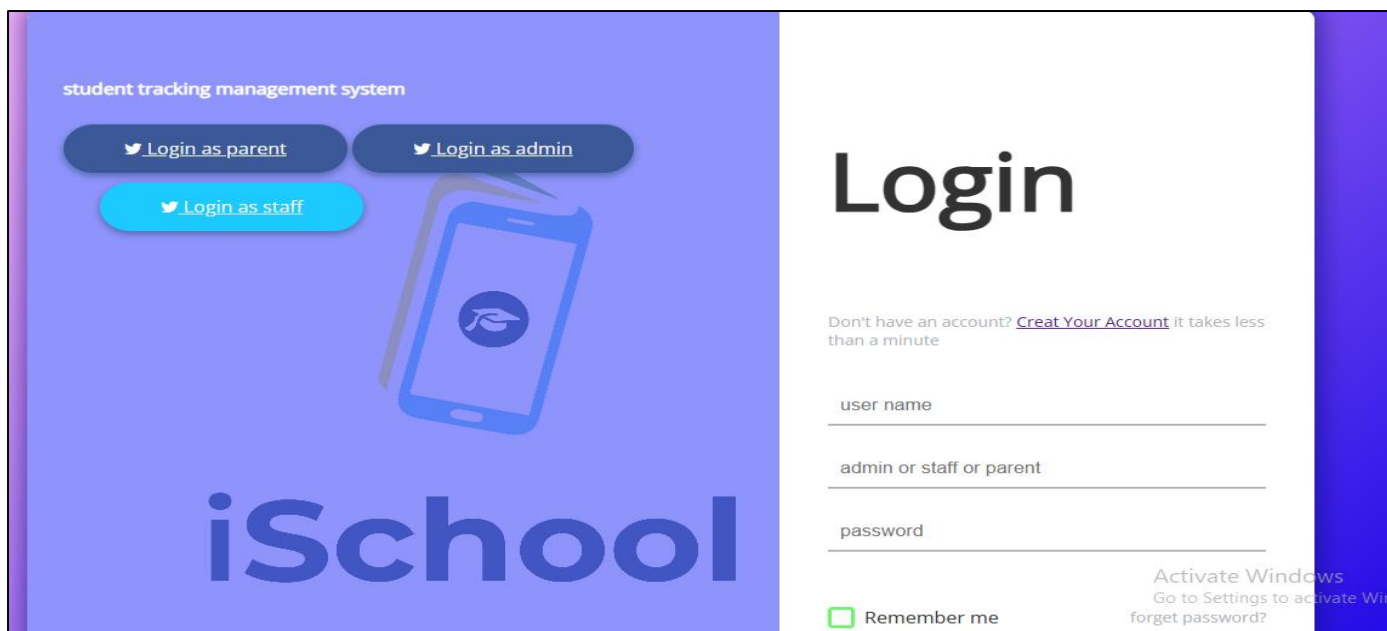


Fig4: Sign Up Page

➤ *Staff Dashboard Page*

The Staff Dashboard page serves as a central control panel designed to streamline staff members' access to key functionalities in the educational system. Within this interface, staff can effortlessly perform a variety of tasks, including adding new students to the database, efficiently

managing student profiles, taking attendance records, generating comprehensive attendance reports, inputting student marks and feedback, and accessing valuable insights through the feedback view feature. This consolidated platform enhances staff productivity and aids in optimizing day-to-day operations.

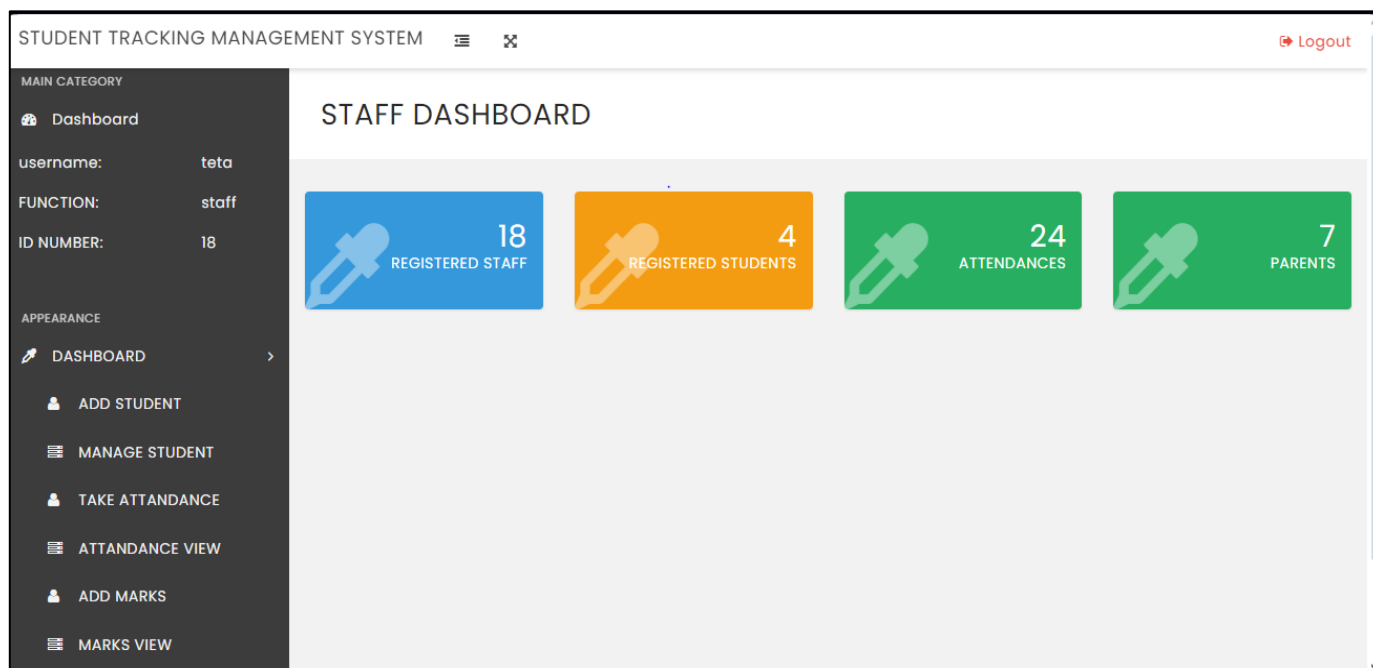


Fig 5: Staff Dashboard

➤ *Adds Student*

To add a student to the system, staff members can navigate to the "Add Student" feature on the Staff Dashboard page. Here, they can input essential information such as the student's name, date of birth, contact details, and enrollment

information, ensuring that the student's profile is accurately and comprehensively recorded in the system. This streamlined process simplifies the task of populating the database with new students, making it both time-efficient and user-friendly.

Fig 6: Add Student Page

➤ *Adds Student Marks*

The Add Student Marks feature on the staff dashboard page allows staff members to input and record students' academic performance by assigning grades or marks to their

assessments, assignments, and examinations. This feature helps in maintaining a comprehensive and organized record of each student's progress, making it easier for staff to evaluate and communicate their performance effectively.

#	name	class	RECORD MARKS
2	UMURAGE	senior one	<a href="#">ADD MARKS</a>
9	UMUNYESHULI ERIC	senior one	<a href="#">ADD MARKS</a>
10	UWINEZA CLARISSE	senior two	<a href="#">ADD MARKS</a>
11	tuyishime justin	SI	<a href="#">ADD MARKS</a>

Fig 7: Adds Student Marks

➤ *Send Notifications*

In the Send Notifications section, the Admin can efficiently dispatch notifications to parents, providing them

with valuable updates on their students' academic progress and activities, fostering transparent communication and enhancing parental engagement in the educational journey.

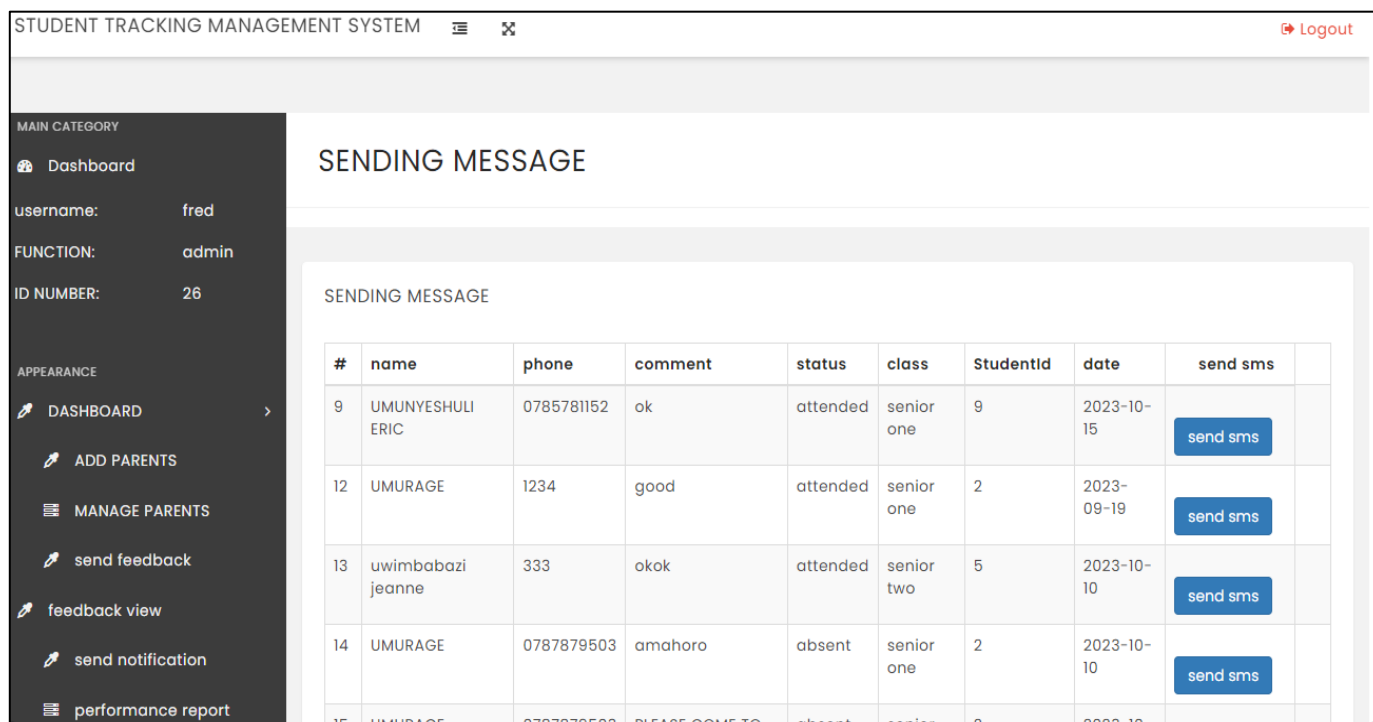


Fig 8: Send Notification

➤ *Analysis of Findings*

The developed tracking system has positively impacted parent-school collaboration by promoting transparency, enhancing communication, and fostering a collaborative environment focused on student development and academic success. The study's findings highlight the significance of leveraging technology to enhance parent-school tracking systems, ultimately contributing to improved educational outcomes and a more engaged and informed educational community at École Secondaire Islamique de Gisenyi.

**V. SUMMARY, CONCLUSION AND RECOMMENDATIONS**

The primary objective of this research was to design and implement a comprehensive system for tracking parental and school monitoring of children's activities and academic progress at École Secondaire Islamique de Gisenyi. This goal was not only achieved successfully, but it also became evident that the system is poised to make a substantial contribution to the overall educational development within the institution. The developed system promises to enhance the effectiveness of communication between parents and the school, thereby fostering a collaborative and supportive environment for students' growth and academic success. It serves as a valuable tool to bridge the gap between home and school, enabling a more holistic and informed approach to educational management and decision-making. The research has not only met its objectives but also opened up new avenues for improved parental engagement and educational enhancement at École Secondaire Islamique de Gisenyi. I can conclude that the objectives of this project have been successfully met and they are as follows:

- To develop a user-friendly tracking system, that provides a platform for parents and the school to efficiently monitor students' activities and academic progress.
- To design a comprehensive tracking framework that establishes a well-defined system enabling meaningful tracking of student progress and challenges.
- To implement the tracking system and conducting training sessions for school staff and parents, equipping them with the necessary skills to effectively utilize the tracking system.
- To analyze by gathering data from the school and parents by identifying areas for potential improvement.

*A. Recommendation*

As this report concludes, it is important to present recommendations for the further enhancement and successful developing of parent and school tracking academic progress and children's activities system. The following recommendations are made:

- The researcher recommends that future researchers in this field consider extending the system to encompass all schools throughout the country. This expansion has the potential to revolutionize the educational system, making it more efficient, transparent, and collaborative, ultimately benefiting a broader spectrum of students, parents, and educational institutions nationwide.
- The researcher suggests that the University of Kigali explore opportunities for international collaborations and partnerships with renowned universities and organizations in the field of information technology. By establishing such collaborations, the university can offer students access to a global perspective, enrich the academic environment, and create pathways for international internships and research opportunities.



These partnerships can foster cross-cultural learning experiences, broaden students' horizons, and enhance their global competitiveness in the IT sector.

- The researcher recommends that the system evolve into an automatic system over time. This transition will streamline processes, reduce manual intervention, and ensure the system's adaptability to the dynamic demands of educational technology. The automatic system should be designed to efficiently handle data, generate insights, and adapt to emerging technological trends, ensuring its sustained relevance and effectiveness in the long run

### REFERENCES

- [1]. Aleksieienko-Lemovska, L.V. (2019). The activity approach as a basis for preschool teachers' methodological activities. *Humanitarian Balkan Research*, 3, 4(6), 10-14
- [2]. Brown, K. A., & Jackson, M. R. (2021). Ethical considerations in parental and school tracking: A comparative analysis. *Educational Ethics and Policy*, 15(2), 156-173.
- [3]. Chen, W., & Liu, M. (2016). School tracking practices and their impact on student motivation: A mixed-methods study. *Educational Research Quarterly*, 40(2), 123-140.
- [4]. Garcia, C. D., & Perez, J. R. (2018). The role of culture in parental tracking practices: A case study of École Secondaire Islamique de Gisenyi. *International Journal of Educational Anthropology*, 12(3), 256-274.
- [5]. Johnson, L. C., & Smith, A. B. (2018). Parental involvement and student tracking: A longitudinal study. *Journal of Educational Psychology*, 112(3), 345-362.
- [6]. Kim, S., & Park, H. (2022). Exploring alternative approaches to tracking in secondary education: A case study of mixed-ability classrooms. *Teaching and Teacher Education*, 52(2), 195-210
- [7]. Lee, H., & Kim, Y. (2019). Examining the effects of tracking on students' academic performance and well-being: A systematic review and meta-analysis. *Educational Psychology Review*, 37(1), 78-96.
- [8]. Martinez, S. M., & Rodriguez, J. M. (2017). Parent-school collaboration in tracking practices: Perspectives from low-income families. *Journal of Family Studies*, 25(4), 412-428.
- [9]. Martinez, A. B., & Gonzalez, M. R. (2019). Parental involvement in student tracking practices: A cross-cultural analysis. *Journal of Cross-Cultural Psychology*, 45(5), 512-530.
- [10]. Peterson, S. E., & Thompson, L. G. (2018). Collecting and Analyzing Data on Parental Involvement in School Tracking Systems: A Mixed-Methods Approach. *Journal of Educational Research*, 45(3), 267-282.
- [11]. Pliushch, V.M. (2018). Independent work of students as a factor of improving education quality. *Balkan Scientific Review*, 1, 69-71.
- [12]. Smith, J. K., & Williams, R. T. (2016). The impact of tracking on students' mental health and well-being: A longitudinal study. *School Psychology Quarterly*, 41(3), 256-272.
- [13]. Thompson, L. G., & Rodriguez, C. A. (2020). Differentiated instruction as an alternative to tracking: A case study of student outcomes in mixed-ability classrooms. *Journal of Educational Diversity*, 25(1), 89-105
- [14]. Wang, Q., & Li, X. (2015). Long-term effects of tracking on students' educational trajectories: A 7-year follow-up study. *Journal of Educational Research*, 102(4), 389-404.
- [15]. Wang, H., & Kim, J. (2021). Longitudinal effects of tracking on student achievement and educational outcomes: A 5-year follow-up study. *Journal of Educational Effectiveness*, 37(4), 345-362.