# EduBridge – Empowering Rwanda’s Educational Future

## Introduction

* **Opening Statement:**
  + Good morning, my name is IRANKUNDA Elyssa, and today I’m very excited to introduce **EduBridge –** a transformative system designed to support Rwanda’s educational goals by addressing one of its biggest challenges: **STUDENT DROPOUT PREVENTION**
* **Context Of Rwanda’s Achievements and Ongoing Efforts:** 
  + Rwanda has made impressive strides in education, achieving Universal primary education and net enrollment rates consistently above 97.5% since 2016. The government has implemented essential initiatives such as **school feeding programs**, **ICT for education**, and a **competency based-curriculum,** promoting equity and accessibility across Rwanda.
  + However, challenge persist, particularly around high dropout rates and delayed interventions. Current systems often detect dropout only after it occurs, leaving little time to prevent or reverse these cases.

## Problem Definition: The Persistent Challenge of Student Dropouts

* + **The dropout Crisis:**
    - Despite these achievements, dropout rates remain high, especially at critical points such as the transition from primary (P6) to secondary school. Dropouts are often linked to various challenges, including economic hardships, academic difficulties, and lack of support, with older students being most at risk.
    - Delayed Interventions: Currently, schools and the government are typically informed of dropouts only after students have left. This limits opportunities for early interventions, making it difficult to address the root causes before students disengage entirely.
  + **Impact of Dropouts:**
    - **Individual Level:** Students who drop out face limited job opportunities, often leading to low-paying, insecure work.
    - **Societal and Economic Impact:** High dropout rates impact Rwanda’s workforce development and slow economic growth, creating increased demand for social support systems and reducing workforce productivity.

## Solution Overview: EduBridge - A Comprehensive AI Solution for Dropout Prevention

### Dropout Prevention

* **What is EduBridge?**
  + EduBridge is an AI-driven platform that uses data analytics to **predict and prevent student dropouts**. By identifying students at risk early, EduBridge enables school administrators and government stakeholders to take timely actions to keep students engaged and on track
* **Core Features:**
  + **Predictive AI Model:**  EduBridge utilizes advanced algorithms to assess various factors (attendance, grades, behavior, family background) and generate a dropout risk profile for each student.
  + **Integration with Smart Vision Attendance System (SVAS):** Our newly developed Smart Vision Attendance System (SVAS) automates attendance tracking using camera-based technology in classrooms, ensuring accurate, real-time data without adding work for teachers.
  + **Multilingual Recommendations:** The system provides personalized recommendations and insights in multiple languages, ensuing accessibility for diverse users, including parents, educators, and policymakers.

## How EduBridge and SVAS Work Together

* **AI-Powered Risk Prediction:**
  + EduBridge’s machine learning models, including Random Forest, Neural Network, and Logistic Regression, analyze attendance, grade, behavior, and family context to identify risk patterns. This early detection allows schools to intervene before risk factors lead to dropout.
* **Smart Vision Attendance System (SVAS):**
  + **Overview:**
    - **SVAS** uses camera-based technology to automatically track and record student attendance, removing the need for teachers to take attendance manually. This reduces administrative burden and ensures real-time, accurate attendance data.
  + **Role In Dropout Prevention:**
    - Attendance has been identified as the one of the strongest predictors of dropout. SVAS allows EduBridge to detect irregular attendance patterns immediately. If a student’s attendance begins to decline, the system flags them for further monitoring, allowing schools to take proactive steps before absenteeism becomes chronic.
* **SHAP for Transparent Explanations:**
  + EduBridge uses Shapley Additive exPlanations (SHAP) to provide clear, interpretable insights into each risk score. This allows stakeholders to understand the key factors influencing each prediction, making the intervention process well-informed and specific.

## Impact of EduBridge and SVAS on Schools and Students

* **Benefits for Schools**
  + EduBridge provides administrators with a powerful system to monitor dropout risks in real-time, with SVAS ensuring attendance data is always accurate and updated without additional workload on teachers.
  + With a centralized platform, schools can address attendance issues, academic challenges and behavioral concerns early, leading to a more engaged student body and improved retention rates.
* **Empowering Parents:**
  + EduBridge enables parents to stay informed and engaged. With clear insights into their child’s progress and attendance patterns, parents can take timely actions to support their child’s education.

## National and Economic Impact of EduBridge

* **Human Capital Development**
  + By reducing dropout rates, EduBridge directly contributes to **Rwanda’s Vision 2050,** ensuring that more students complete their education, gain essential skills, and contribute to Rwanda’s workforce and economy.
* **Economic and Policy Support**
  + Preventing dropouts reduces reliance on social support systems and boosts workforce productivity, aligning with Rwanda’s economic goals. EduBridge’s data insights allow policymakers to make informed decisions about resource allocation and educational strategies.

## Demonstration: Showcasing EduBridge and SVAS in Action

* **Key Components**
  + **Risk Prediction Dashboard:** Show how EduBridge identifies at-risk students and provides recommendations.
  + **SVAS Integration:** Demonstrate how the Smart Vision Attendance System tracks attendance seamlessly and updates the EduBridge system in real time.
  + **Role-Specific Dashboards:** Showcase the customized experience for school administrators, teachers, parents, and government officials.

## Conclusion and Call to Action

* **Summary**
  + EduBridge is a comprehensive, data-driven platform designed to strengthen Rwanda’s education system by addressing dropout challenges proactively. Combined with the Smart Vision Attendance System (SVAS), EduBridge offers a future-proof solution to track attendance accurately and intervene before dropout becomes inevitable.
* **Call To Action**
  + “I invite each of you to support EduBridge and SVAS in building a future where every Rwandan student has the opportunity to complete their education, achieve their potential, and contribute to a thriving Rwanda. Together, we can make quality education a reality for Rwandan youth”.