

ABSTRACT

The issue of at-risk students in higher education is a complex problem involving academic, psychological, and financial dimensions. Existing monitoring systems tend to be curative, manual, and primarily focused on academic performance, often resulting in delayed interventions. This situation is worsened by the lack of an integrated platform that supports holistic and preventive mitigation efforts to reduce the risk of student dropout.

To address this issue, a web-based MITIGASI system was developed to assist academic advisors in identifying, monitoring, and intervening with at-risk students. This system employs a Random Forest algorithm to classify student status (Safe, Alert, Critical) based on GPA, psychological test scores, and financial conditions. Features such as a monitoring dashboard, academic trend visualization, psychological and financial evaluation forms are part of the solution to accelerate decision-making for academic advisors.

Evaluation results show that the MITIGASI system achieved excellent classification performance, with accuracy, precision, recall, and F1-score reaching 95% in the machine learning model test. From a usability perspective, more than 85% of users expressed satisfaction with the system's ease of use, speed, and intuitive interface. Overall, this system successfully meets the needs of academic stakeholders and serves as an effective solution for preventing and mitigating student academic risks in higher education institutions.

Keywords: student mitigation, dropout, machine learning, at-risk students, academic monitoring