**INTRODUCTION**

The displacement crisis of the Rohingya people has come out as one of the most pressing humanitarian challenges of the 21st century. With nearly 1000,000 Rohingya refugees (<https://data.unhcr.org/en/country/bgd>) currently residing in makeshift camps in Bangladesh, there is an urgent need for innovative solutions that not only provide basic accommodation but also bring up productivity and self-sufficiency (Milton et al., 2017). This paper aims to explore the development of an intelligent accommodation system for Rohingya refugees that integrates sustainable living conditions with opportunities for economic and social productivity ensuring security, imposing the capabilities of artificial intelligence (AI) to address these needs.

**Problem Background**

The Rohingya, an ethnic minority from Myanmar, have faced decades of systemic persecution, leading to mass displacement. The influx of refugees into Bangladesh, particularly in the Cox’s Bazar region, has created partition on resources and infrastructure. Traditional refugee camps often focus exclusively on providing immediate relief, such as food and shelter, neglecting long-term sustainability and the potential for refugees to contribute economically and socially (Bhatia et al., 2018).

To illustrate the gravity of the situation, consider the story of Tasmin, a 51-year-old Rohingya woman who fled Myanmar’s Rakhine State after horrific violence was waged against her ethnic minority group in late 2017. Tasmin and her five children escaped to the forests behind their home, hiking for eleven days before reaching the Naf River, which marks the border between Myanmar and Bangladesh. Tasmin’s family was resettled in Kutupalong, where they joined nearly one million other Rohingya refugees. Tasmin's story reflects the extreme trauma and severe hardships that all Rohingya refugees endure in these overcrowded camps, where they face dire living conditions, including inadequate shelter, food shortages, and a lack of basic sanitation and healthcare. (Relief International, 2019).

Adding to these challenges, an alarming rise in crimes within the camps, including murders and drug-related offenses, has been reported. These crimes are often linked to the activities of armed groups such as the Arakan Rohingya Salvation Army (ARSA) and the Arakan Solidarity Organization (RSO) (The Daily Star, 2023). Moreover, the issue of Rohingya refugees obtaining fake Bangladeshi identification documents further complicates the security dynamics within the camps, creating an environment of instability and fear (The Dhaka Tribune, 2023). The rise in crimes can be attributed to several factors, including the lack of economic opportunities and the pervasive sense of hopelessness among refugees. Many jobless youths, facing severe economic deprivation, become involved in criminal activities as a means of survival. Additionally, the competition among armed groups for control over illegal activities such as drug trafficking and extortion fuels further violence and instability within the camps(Dhaka Tribune, 2023).

The problems that this research aims to address can be broadly summarized into two main issues. First, there is the challenge of inadequate living conditions and the lack of long-term sustainability in current refugee accommodation, which hampers the economic self-sufficiency and social productivity of the Rohingya refugees. Second, there is the issue of escalating security problems within the camps, including crime and the misuse of identification documents, which further destabilizes the already precarious environment. This paper addresses the critical need to rethink refugee accommodation from a perspective that includes productivity, self-reliance, and enhanced security.

**Related Studies**

Several studies have examined the conditions and needs of Rohingya refugees. For example, Bhatia et al. (2018) highlight the terrible living conditions in the camps, emphasizing the lack of basic facility and economic opportunities. Similarly, Milton et al. (2017) discusses the health challenges faced by the Rohingya due to overcrowding and poor sanitation.

While these studies provide valuable insights, there is a notable gap in the literature regarding integrated solutions that combine accommodation with productivity-enhancing features and advanced technologies such as AI. This research aims to fill that gap by proposing a holistic approach to refugee accommodation that imposes AI to enhance sustainability, productivity, and security.

**Research Objectives**

This research aims to explore the development of an intelligent accommodation system for Rohingya refugees that integrates sustainable living conditions with opportunities for economic and social productivity, imposing the capabilities of artificial intelligence (AI) to address these needs. The objectives are to design an accommodation system that is both sustainable and helpful to long-term living, identify and integrate economic activities that can be supported within the accommodation system to bring up productivity and self-sufficiency among refugees, and implement AI technologies to optimize resource allocation, enhance security, and support economic integration within the refugee camps.

The core problem is the shortage of current refugee accommodation systems to provide more than just temporary relief. This issue is crucial because it impacts the dignity, well-being, and future prospects of refugees. Addressing this problem relates directly to our research question: **How can we develop an accommodation system for Rohingya refugees that also facilitates their productivity and ensures their security using AI?**

By addressing this question, the research aims to provide a holistic solution that not only meets the immediate needs of the refugees but also empowers them to contribute positively to their community and the host country. This approach not only benefits the refugees but also reduces the socio-economic burden on the host country.

**Research Contributions**

This research will contribute to the field of humanitarian aid and refugee studies by providing a framework for developing intelligent accommodation systems that go beyond basic needs. The findings will be particularly relevant to policymakers, NGOs, and international organizations working in refugee camps. The proposed solutions aim to empower refugees, reduce dependency on aid, and promote integration with the host community. This approach not only benefits the refugees but also reduces the socio-economic burden on the host country.