**3. Methodology**

The methodology of this study is based on a systematic literature review (SLR) approach, designed to comprehensively evaluate existing research and literature relevant to the development of intelligent accommodation systems for Rohingya refugees. This approach ensures a thorough and unbiased collection of data that contributes to forming a robust framework for addressing the research problem. The SLR method follows the guidelines set by Kitchenham et al. (2010) and Petersen et al. (2008), which emphasize the importance of systematic data collection and analysis.

#### 3.1 Search Strategy

The search strategy employed in this study was designed to locate the most relevant academic and scholarly sources across multiple databases. The selected databases include IEEE Xplore, SpringerLink, ScienceDirect, ACM Digital Library, IGI Global, Google Scholar, and Wiley Online Library. These databases offer extensive coverage of technological and humanitarian literature, essential for the interdisciplinary nature of this research.

*3.1.1 Keywords and Boolean Logic*

A combination of carefully selected keywords was utilized to refine and target the search results. Boolean operators were applied to manage and expand the search results effectively. The following keywords and Boolean logic were used:

* "Rohingya refugees" AND "accommodation system" AND "artificial intelligence"
* "refugee productivity" OR "sustainable refugee camps"
* "AI in refugee security" AND "systematic review"

This strategic combination of search terms helped ensure the search was both comprehensive and focused on relevant studies.

*3.1.2 Forward and Backward Search Techniques*

In addition to the primary search using databases, both forward and backward citation search techniques were employed. This included reviewing the references cited in key articles (backward search) as well as identifying more recent publications that cited these articles (forward search). This approach ensured that all relevant literature, including the most recent studies, was considered in the review process. This comprehensive search strategy minimizes the risk of omitting any critical studies or emerging research.

#### 3.2 Inclusion and Exclusion Criteria

To ensure the relevance and quality of the reviewed literature, specific inclusion and exclusion criteria were applied throughout the selection process.

### *3.2.1 Inclusion Criteria*

* Peer-reviewed journal articles and conference papers.
* Studies focusing on refugee accommodation, AI applications in humanitarian settings, and security.
* Publications in English.
* Articles published between 2000 and 2024.
* Studies that included abstract or title discussions relevant to refugee accommodation systems or AI in humanitarian settings.

#### 3.2.2 Exclusion Criteria

* Non-peer-reviewed articles, such as opinion pieces or editorials.
* Studies not explicitly addressing AI or accommodation systems in refugee contexts.
* Articles where only titles were relevant but lacked substance in abstracts or full texts.
* Publications without sufficient detail or methodological rigor.

#### 3.3 Selection Process

The selection process was designed to systematically screen studies based on their relevance to the research question

#### 3.3.1 Initial Screening

An initial search of the academic databases yielded 87 articles after applying the defined keywords. Titles and abstracts of these papers were reviewed to determine their relevance to the research question. This initial screening was based on whether the articles mentioned AI, refugee accommodation, and security systems, among other factors.

#### 3.3.2 Secondary Filtering

Following the initial screening, the inclusion and exclusion criteria were applied to refine the list. This stage involved filtering out studies that lacked peer-reviewed rigor or relevance to AI-driven accommodation systems for Rohingya refugees. After this stage, 30 articles remained for further review.

#### 3.3.3 Final Selection

A detailed review was conducted on the remaining 30 articles, which led to a final selection of 13 studies. These were chosen based on their direct relevance to the research objectives, as well as their methodological rigor. Both free full-text articles and those available only through abstracts were considered in this review, with abstracts used to extract data when full texts were not accessible.

**Figure 1** Literature Search and Article Selection for Systematic Review

A diagram of a flowchart

Description automatically generated

*Note.* This diagram illustrates the systematic selection process used in this study, from the initial identification of 87 articles to the final inclusion of 13 articles based on predefined inclusion and exclusion criteria.

#### 3.4 Data Extraction and Synthesis

Data extraction was performed with a standardized approach to ensure consistency. For freely available articles, detailed information was gathered from all sections including the abstract, methodology, results, and discussion. For articles where only abstracts were accessible, data extraction focused on the abstracts. This method facilitated a broad review of available literature while acknowledging the limitations imposed by paywalls.

#### 3.4.1 Data Extraction Process

A standardized data extraction form was used to methodically collect information from each study. For fully accessible articles, comprehensive data were extracted across all sections: abstract, introduction, methodology, results, and conclusions. This thorough examination was aimed at obtaining a holistic understanding of each study's contributions. For articles limited to abstracts, the extraction focused on gleaning the most significant points that related to the research objectives of developing an intelligent accommodation system for Rohingya refugees.

#### 3.4.2 Thematic Synthesis

The information extracted was then analyzed thematically, grouping studies into relevant themes such as "AI applications in refugee settings," "security enhancement through technology," and "initiatives for economic productivity." This synthesis helped identify prevalent trends, highlight significant gaps, and pinpoint emerging opportunities within the research area.

#### 3.4.3 Quality Assessment

Quality assessment was performed on the selected studies based on criteria including citation count, publication in high-impact journals, and the rigor of the methodology employed. This rigorous assessment ensured that only high-quality studies were included in the synthesis, enhancing the credibility and impact of the research findings.

Articles:

1. Trapped in statelessness: Rohingya refugees in Bangladesh (Milton et al. (2017))
2. The Rohingya in Cox's Bazar: When the Stateless Seek Refuge (Bhatia et al. (2018)
3. From forced migration to forced arrival: the campization of refugee accommodation in European cities (René Kreichauf (2028))
4. The Rohingya Refugees in Bangladesh: A Vulnerable Group in Law and Policy (Hassan Faruk Al Imran)
5. Refugees Who Mean Business: Economic Activities in and Around the Rohingya Settlements the Rohingya Settlements in Bangladesh (Mateusz J. Filipski et al.)
6. International Response to Humanitarian Crisis: A study of Rohingya Issue(Syed Muhammad Usman Masood)
7. BRINGING ROHINGYA REFUGEES OFF-TRACK OF LONG-TERM ECONOMIC VULNERABILITY IN BANGLADESH(Ferdinand Moses)
8. Forced Migration and the Expatriation of the Rohingya: A Demographic Assessment of Their Historical Exclusions and Statelessness(Mehebub Sahana et al.)
9. Sustainable Livelihood for Displaced Rohingyas and Their Resilience at Bhashan Char in Bangladesh (Md. Monirul Islam et al.)
10. Investigating the capability of UAV imagery for AI-assisted mapping of Refugee Camps in East Africa (CYC Chan et al.)
11. Refugee mental health and healing: Understanding the impact of policies of rapid economic self-sufficiency and the importance of meaningful work (JM hess et al. )
12. Blessing or burden? Impacts of refugees on businesses and the informal economy (Onur Altındağ et al.)
13. Poverty Reduction in a Refugee-Hosting Economy. A Natural Experiment (Maystadt et al.)