**Group 4 Project: CivicVoice**

**Project Background**

The country has been working to rebuild its infrastructure and institutions following years of civil war, but significant hurdles remain. Systemic challenges hinder effective governance and public service delivery. The CivicVoice AI app is a platform for citizens in Liberia to report urgent incidents and local issues. Using voice or text, people can submit reports for emergencies like crime, fire, and medical crises, as well as non-emergency problems like poor roads and power outages.

**Relevance to SDG goals**

The CivicVoice AI project is highly relevant to several UN Sustainable Development Goals (SDGs), as it addresses key areas of governance, infrastructure, and social well-being that are critical for Liberia's development. The app contributes directly to building a more resilient, equitable, and peaceful society. The app is in relation with SDG 16, 11, 3 and 9

The key functions of NLP mentioned are:

* **Sentiment Analysis:** Automatically gauging the urgency and emotional tone of reports to flag critical situations.
* **Keyword Extraction:** Identifying important phrases like "armed robbery" or "road collapsed" to quickly get the core information from a report.
* **Automatic Routing:** Using the extracted keywords to automatically send a report to the appropriate department, like the police or fire service, to speed up response times.

**Literature Review**

### **Study 2: AI and Public Safety**

This study demonstrates that **AI and Natural Language Processing (NLP)** are effective tools for public safety. Research has shown that these technologies can analyze emergency calls and texts to reduce response times and increase the accuracy of detecting critical events.

### **Study 3: AI in Governance**

Studies from the UN and "AI and Cities" show that AI has the potential to enhance government operations, improve decision-making, and optimize the allocation of resources. This supports the CivicVoice app's goal of using **predictive analytics** to anticipate and address issues like crime hotspots or infrastructure failures.

### **Project Description**

The project will use:

* **Citizen Reports:** public safety incidents, infrastructure issues, or health emergencies.
* **Geospatial Data:** Location information (GPS coordinates) attached to each report, providing a spatial context for the events.
* **Speech-to-Text Conversion:** Transcribing audio reports into a standardized text format.
* **Data Labeling:** Initial reports will be manually labeled to create a training dataset for categories

### **Approach**

### Models based on **Natural Language Processing (NLP)** will be utilized to analyze the text data. These models are well-suited for tasks like:

* **Sentiment Analysis:** Automatically assessing the emotional tone and urgency of a report.
* **Keyword Extraction:** Identifying and extracting key entities and phrases from the text.
* **Categorization:** Classifying reports into pre-defined categories (e.g., Public Safety, Public Works, Health Services) to ensure they are routed to the correct authorities.

By analyzing patterns in the time and location of reports, a supervised learning approach will potentially forecast high-risk areas for certain types of incidents, such as predicting crime hotspots or identifying infrastructure that is prone to failure.