Idea Proposal: Offline AI-Powered Community Support and Vulnerability Prediction System for Conflict-Affected Areas in Myanmar

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1. Project Idea:

This project aims to empower communities in war-affected, rural, and politically oppressed areas of Myanmar by combining predictive modeling with an offline-accessible chatbot system. The predictive model identifies communities most vulnerable to poverty, food insecurity, health crises, and natural disasters. The offline chatbot provides residents with guidance on accessing NGO and UN support services related to health, education, livelihood, and disaster response, even in low-connectivity environments since Internet availability is very limited in those areas. Together, these components enable data-driven interventions and direct community support.

2. Relevance to Sustainable Development Goals (SDGs):

- **SDG 1 – No Poverty**: Identifies communities at highest risk, guiding targeted aid.
- **SDG 3 – Good Health and Well-being**: Provides access to health resources and emergency reporting.
- **SDG 4 – Quality Education**: Offers guidance for accessing schooling and learning resources.
- **SDG 10 – Reduced Inequalities**: Reaches marginalized populations in conflict-affected areas.
- **SDG 13 – Climate Action**: Supports reporting and response to climate-related crises.

3. Literature Examples:

1) Hall, O., Dompae, F., Wahab, I., & Dzanku, F. M. (2023). A review of machine learning and satellite imagery for poverty prediction: Implications for development research and applications. *Journal of International Development*, *35*(7), 1753-1768.
2) Bhosale, V. N., Ghorpade, A. S., & Khamkar, K. M. (2025). Echo AI Platform: Revolutionizing Offline Chatbots with LLaMA 3 for Data Retrieval.

[Both together show that this project builds on proven research trends: one for poverty prediction and one for offline AI communication systems.]

4. Describe Your Data:

- Open-source datasets: ACLED (conflict data), World Bank & UNDP (socio-economic), NASA (climate)
- Formats: CSV/GeoJSON.
- Custom chatbot dataset (FAQs from NGO/UN sites).
- Basic preprocessing: Cleaning, normalization, and feature engineering (income index, conflict rate, climate risk).

5. Approach (Machine Learning or Deep Learning):

The project will primarily use a machine learning approach for the vulnerability prediction model, as the datasets are structured and limited in size. Algorithms such as **Random Forest** or **Logistic Regression** will be applied to predict community vulnerability based on socio-economic, environmental, and conflict indicators. These models are interpretable, efficient, and suitable for small-scale, real-world data. For the offline chatbot, a **rule-based** or **lightweight NLP** approach which is inspired by **LLaMA-based** offline architectures will be used to provide responses and aid requests without internet access. This hybrid design ensures both technical feasibility and social impact in low-resource, conflict-affected settings.