Hope for Sudan

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Table of Contents

Abstract

This project aims to support Sudan’s post-war recovery through a web application that provides an interactive platform for mapping affected areas, displaying AI-analyzed satellite images, identifying available services like electricity and water, collecting citizen input, and helping NGOs and government agencies prioritize recovery efforts. It also enables citizens to vote on needs, share local initiatives, and contribute to a living digital archive.

الخلاصة

يهدف هذا المشروع إلى دعم جهود التعافي بعد الحرب في السودان عبر تطبيق ويب يوفر منصة تفاعلية لرسم خريطة للمناطق المتضررة، وعرض صور الأقمار الصناعية التي تم تحليلها بالذكاء الاصطناعي، وتحديد الخدمات المتوفرة مثل الكهرباء والمياه، وجمع مدخلات المواطنين، ومساعدة المنظمات والحكومة في تحديد أولويات التعافي. كما يتيح للمواطنين التصويت على الاحتياجات، ومشاركة المبادرات المحلية، والمساهمة في أرشيف رقمي حي يوثق الأحداث.

1. Introduction:

- ✓ **Background of the Study:**
  Sudan has suffered extensive destruction due to war, with no centralized platform to assess damage or track recovery. Similar systems have been used globally for disaster response, but Sudan lacks a tailored solution.
- ✓ **Significance:**
  The project addresses a critical need, providing tools for citizens, humanitarian organizations, and government to collaborate on recovery and rebuilding.
- ✓ **Project Nature / Scope:**
  Software project including web application platform, interactive mapping, satellite imagery analysis, and community engagement tools.
- ✓ **Research / Project Site:**
  Sudan — focusing on war-affected regions and populations.
- ✓ **Expected Results:**
  - Centralized damage and recovery database
  - Interactive maps and data visualizations
  - Community participation and prioritization tools
  - Enhanced coordination for humanitarian aid

2. Thesis/Project Statement

- ✓ **General Problem Statement:**
  Lack of a unified, interactive system to visualize war damage and engage citizens in recovery efforts.
- ✓ **Specific Problem Statements:**
- Insufficient accurate data on war impact.
- Lack of a platform for citizens to report needs or initiatives.
- Difficulty prioritizing aid and reconstruction efforts.
- No platform for showing real-time availability of services (e.g., electricity, water)

- ✓ **General Objective:**
  To develop a technological platform that supports Sudan's recovery through mapping, data collection, and community engagement.
- ✓ **Specific Objectives:**
  - To build an interactive map displaying affected and restored areas.
  - To apply AI to satellite images for pre- and post-war comparisons.
  - Find out where services are available using the interactive map.
- ✓ **Opportunity:**
  Bridge the information gap and empower communities to contribute to national recovery.

3. Project Significance

The platform will inform decision-making, promote transparency, foster community engagement, and restore hope by showing tangible recovery progress and service restoration.

4. Literature Review and Related Studies

- Review of global humanitarian mapping tools (e.g., Humanitarian OpenStreetMap, UN crisis maps)
- Examination of AI applications in satellite image analysis
- Lessons from community-driven platforms in disaster management

5. Methodology

✓ **Approach:** Agile development with iterative sprints.
Conceptual Framework:

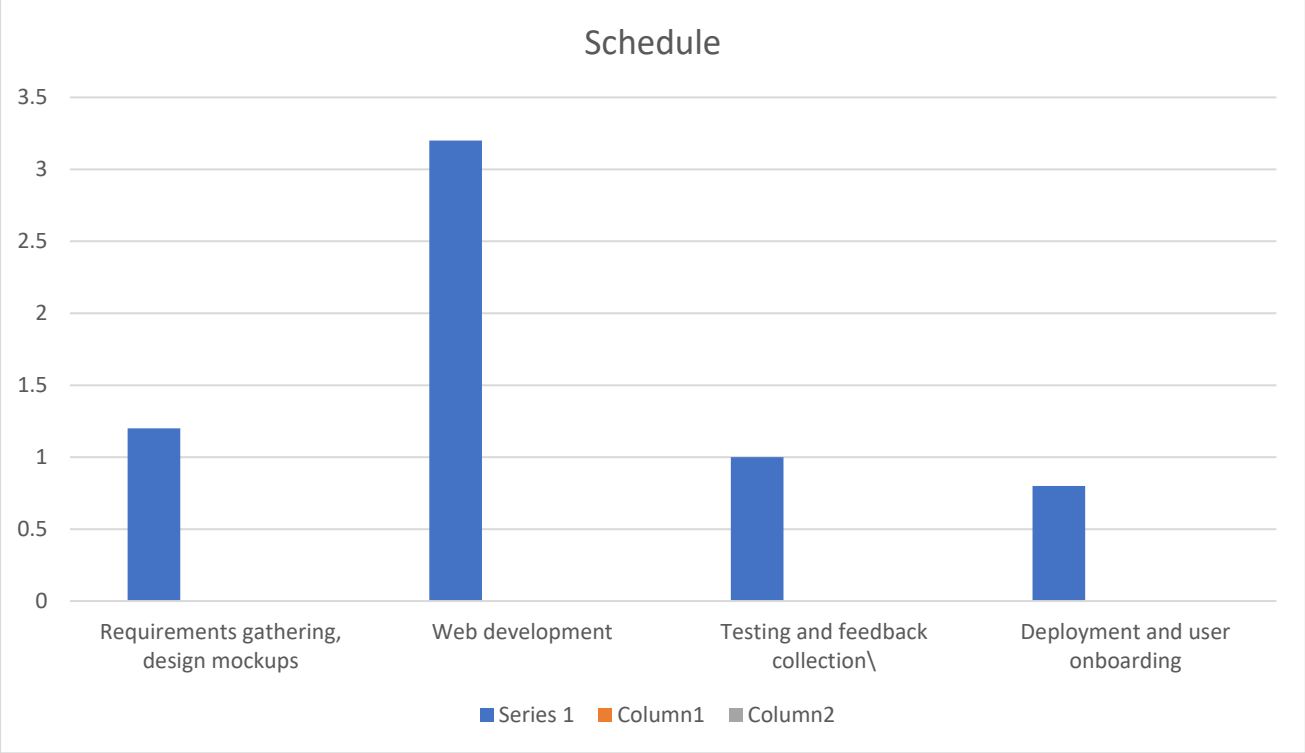
- Data collection: Citizen reports, satellite images, service availability updates
- Data processing: AI analysis, service mapping
- Data presentation: Interactive web interface

6. Project Resource Requirements

ESTIMATED COST	DESCRIPTION	QUANTITY	ITEM
Mostly open-source	React, Node.js, Mapbox, TensorFlow, Firebase	1	Software
$500–$1000 (deployment)	Cloud server hosting (AWS, Google Cloud)	1	Hardware
Free/open sources	Reports from citizens, satellite data	-	Input
Included in dev time	AI processing, service data updates	-	Process

Included in dev cost	Web application, interactive maps	-	Output

7. Proposed Schedule



8. Summary/Conclusion

The Sudan War Recovery & Support Platform will be a pioneering web tool that connects data, people, and organizations to accelerate the country's recovery and improve service delivery.

9. Bibliography

(To be finalized after literature review; includes academic references, technical papers, related systems.)

10. Artifacts

- Web app prototype

- Source code repository
- User manual
- Demo videos/screenshots