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• TITLE PAGE

- **Problem Statement ID – 25039**
- **Problem Statement Title- Integrated Platform for Crowdsourced Ocean Hazard Reporting and Social Media Analytics**
- **Theme- Disaster Management**
- **PS Category- Software**
- **Team ID- Runtime Terror**
- **Team Name- Runtime Terror**

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Blue Shield India

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Smart Ocean Hazard Crowdsourcing & Analytics Platform

Proposed Solution: A unified platform where citizens share geotagged reports, officials validate, and analysts track trends in real time.

Current gaps:

- Citizen input is delayed, alerts are broad, and communication is mostly one-way,
- Real-time dashboard with interactive maps & hotspots,
- Smart access: citizens, officials & analysts,
- Offline support for remote coastal areas

Unique value: Adds the missing ground-truth layer with geo-clustering, NLP-driven social media insights, offline sync, and multi-role transparency.

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TECHNICAL APPROACH

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Technologies:

- Backend: Node.js/Express.js, MongoDB,
- Frontend: WebApp(React), Mobile App (Flutter),
- Cloud: AWS/GCP for scalable APIs & storage,
- NLP: Transformers (BERT), multilingual support,
- Mapping: Leaflet.js / Mapbox for visualization

Methodology:

Data Ingestion → Backend Processing → NLP & Classification → Visualization & Alerts

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TECHNICAL APPROACH - Project Flowchart

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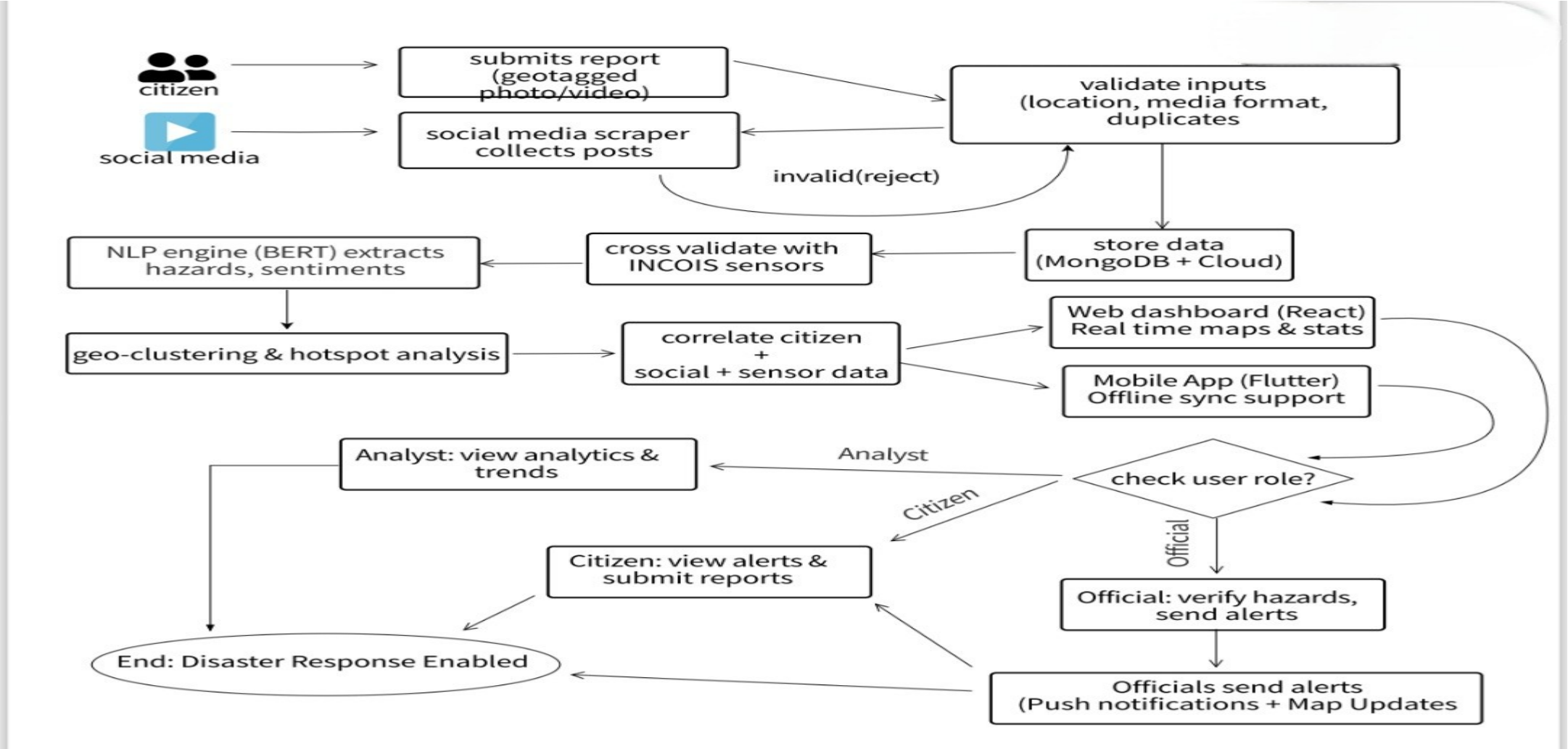

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FEASIBILITY AND VIABILITY

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Feasibility: Adopts Existing Mobile, Web & Cloud Stack

Challenges:

- Misinformation Across Reports & Social Channels,
- Network Gaps in Remote Coastal Areas,
- Real-time big data processing

Strategies:

- Cross-validation with INCOIS sensors,
- Offline Data Capture with Auto-Sync on Connectivity,
- Cloud-based auto-scaling architecture

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IMPACT AND BENEFITS

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Impact:

- Empowers Coastal Communities for Disaster Readiness,
- Enhances Precision in Hazard Warning systems

Benefits:

- Social: Empowers citizens,
- Economic: Reduces disaster losses,
- Environmental: Protects coastal ecosystems,
- Government: Faster, data-driven emergency response & adds the missing ‘ground truth’ layer to existing coastal warning systems.

RESEARCH AND REFERENCES

References:

- INCOIS Coastal Hazard Forecast Publications,
- UNDRR Coastal Risk Reduction Frameworks,
- AI/NLP Studies on Disaster Social Media,
- Global Coastal Hazard Research (Japan, US, Indonesia)
- IPCC Reports on Climate & Coastal Risks