ECOLE MAROCAINE DES SCIENCES DE L'INGENIEUR

Team: ECHOLYTIX

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ALGORITHM & PROTOTYPE

Code Repository:

https://github.com/echolytix/noise-pollution-ai

Prototype Description:

Our prototype integrates an AI sound classification system with sentiment analysis from citizen complaints to create real-time noise heatmaps. It includes:

- IoT simulation scripts generating acoustic data

- CNN model for classifying noise types (e.g., traffic, construction, nightlife)

- LLM pipeline analyzing social feedback for sentiment

- A Streamlit dashboard for visualization and user interaction

Feedback Questions:

1. Is the dashboard intuitive and easy to understand?

2. Does the classification of noise types align with your real-world observations?

3. Is the citizen feedback module useful for policy-making?

4. What features would you like to see in the next version?

5. How would you integrate this into your existing noise control strategies?

First Results & Interpretations:

- The AI model achieves 88% accuracy on urban noise classification using CNNs on spectrograms.

- Sentiment analysis successfully flags 72% of relevant citizen complaints about noise.

- Initial feedback from 3 urban planners highlighted strong potential for district-level monitoring.