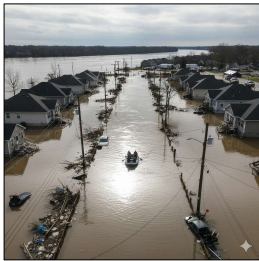


A Romanian-language local AI voice alert system for flood preparedness and mitigation

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INTRODUCTION & AIM

Proving that a non-cloud AI voice assistant in a non-major language (Romanian) is a viable context-sensitive alert system for floods or other disasters, for both affected citizens and authorities



METHOD

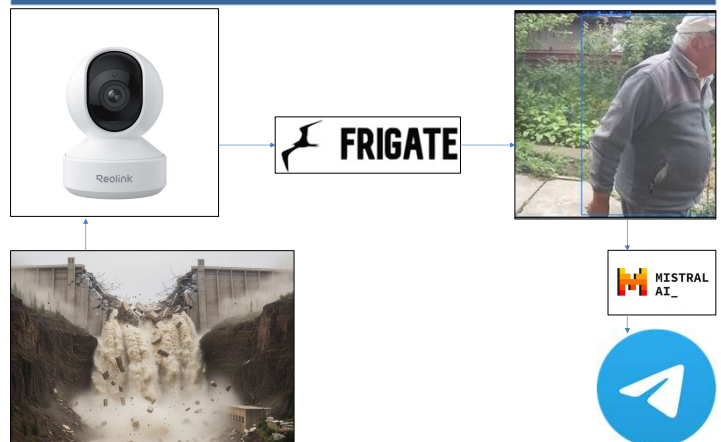
Case study with an open-source Home Assistant server that controls flood sensors, presence sensors, cameras and two-way voice systems with a local AI backend. Used hardware and software included:

- Home Assistant (operating system)
- Frigate (AI image detection)
- Xiaomi Aqara flood & presence sensors
- Raspberry Pi 5 (server hardware)
- Home Assistant Voice Preview Edition (voice assistant hardware)
- Reolink E1 Pro cameras



RESULTS & DISCUSSION

- The flood sensors detected that the monitored area was in the process of being flooded
- A flood notification was sent to the authorities
- The presence sensors and cameras correctly identified that movement in the affected area was due to the presence of people
- The people were counted by the AI vision system & warned (in Romanian, on the speaker) of an impending flood
- The server then notified the authorities that people were present in the danger area



CONCLUSION

It's possible to create an effective customized disaster alerting system for any world language with affordable, off-the-shelf hardware

FUTURE WORK / REFERENCES

Arshad, Ogie, et al, *Computer Vision and IoT-Based Sensors in Flood Monitoring and Mapping: A Systematic Review*, Sensors 19(22), 2019
Ghaphar, Yussof, et al, *Internet of Things (IoT) Architecture for Flood Data Management*, International Journal of Future Generation Communication and Networking 11(1):55-62, 2018