

# Real-time & Objective Explosion Monitor

e3e Monitor / PierX4

# Explosions in 2015



**1,236 Attacks**  
in populated area



**Civilians: 92%**  
of total  
deaths/injuries

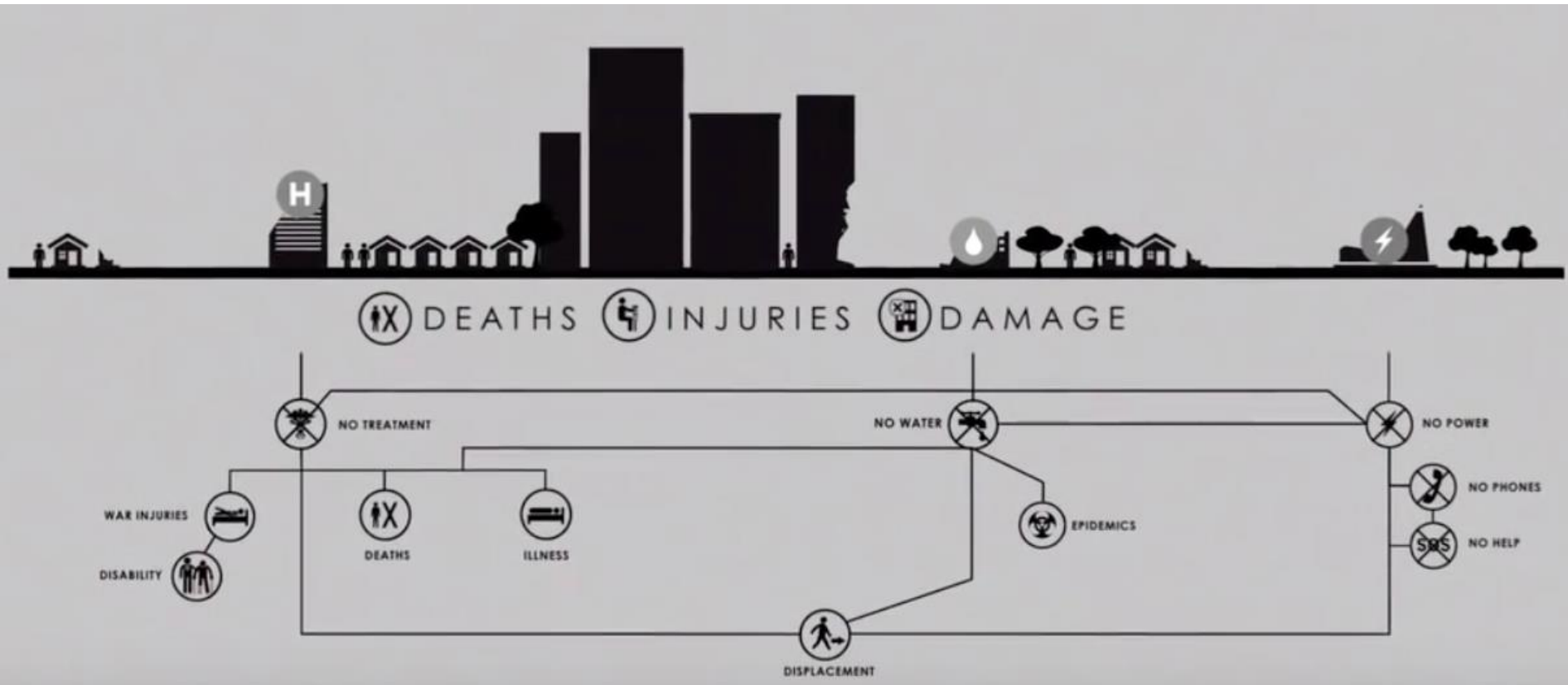
*Data: AOAV's  
Explosive Violence Monitor 2015 report*

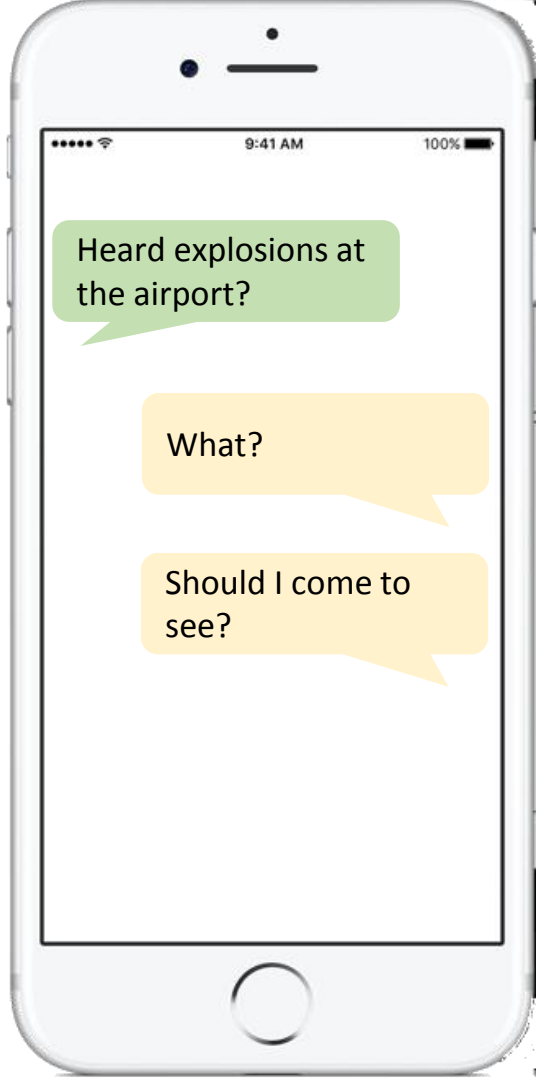
# Explosions in Real life



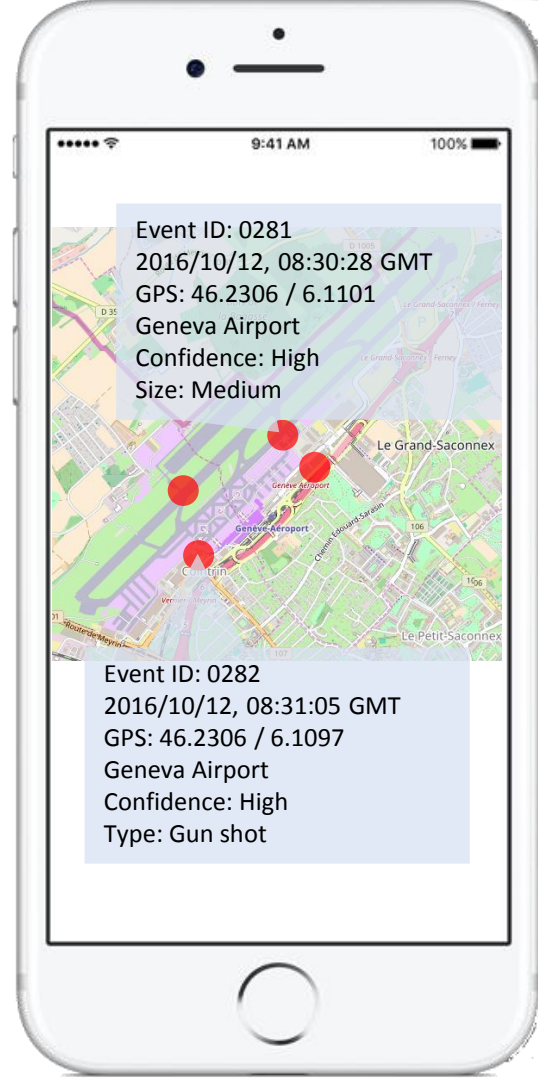
# Anatomy of Destruction

ICRC Youtube, <https://www.youtube.com/watch?v=eqg52WgTkEc>





# Narrative to Objective



Yemen

Event ID: 0281  
2016/10/12, 08:30:28  
Havra Hospital  
Confidence: High  
Size: Medium  
Type: Bombing

Havra  
حصري

Event ID: 0321  
2016/11/12, 14:11:21  
Police Station  
Confidence : Medium  
Size: Low  
Type: Gun shot

Havra  
حصري

Almashhad  
المشهد

وادي دوتس

الحريبات

القاهرة

Qaidun  
قيدون

# e3e Monitor Scheme

## Multi Sensor Device



- Modular
- Cheap
- Flexible chassis

## Detection



- Sound profile
- Time
- Position
- Multi devices

## Data transfer & analysis



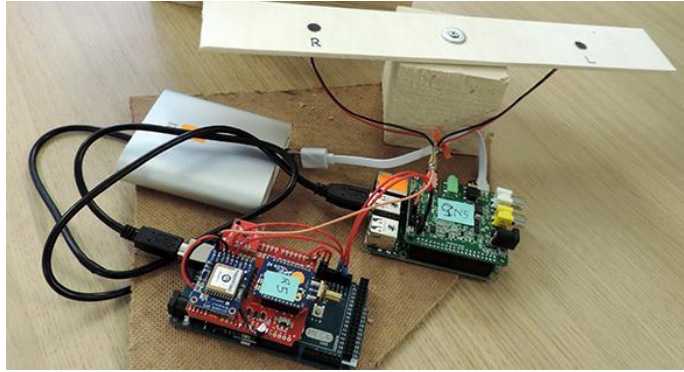
- WiFi, GSM,...
- Matching with reference data

## End users

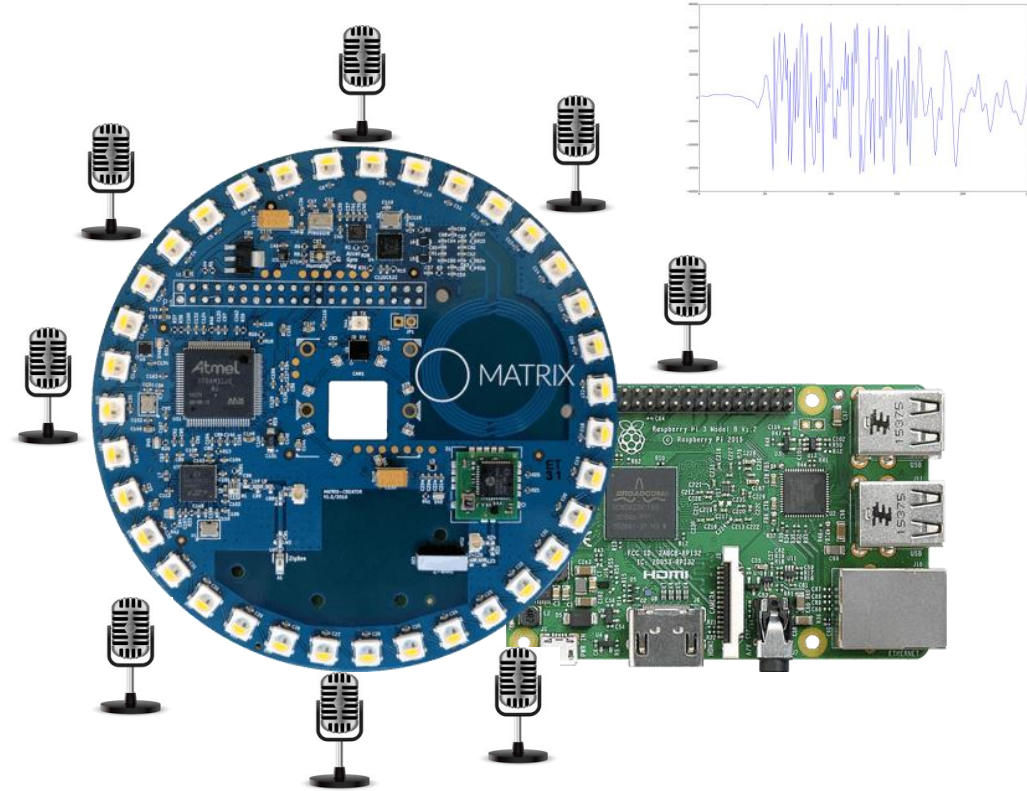


- Interactive map
- Layered structure
- Access certification

# Hardware improvement



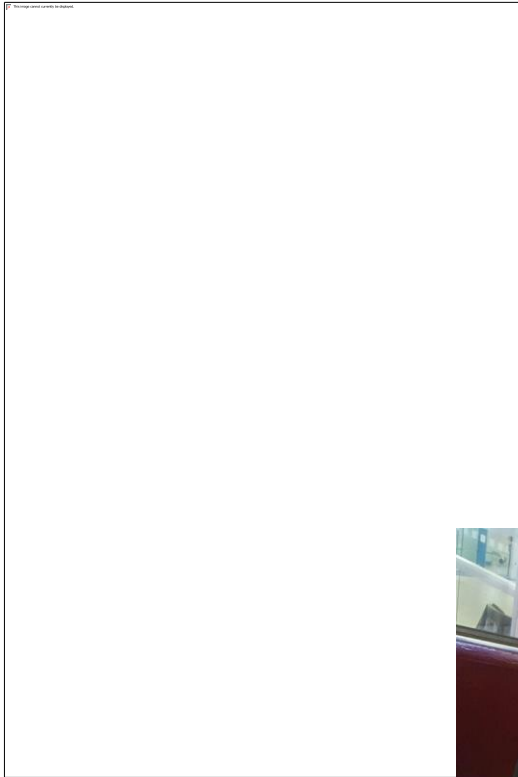
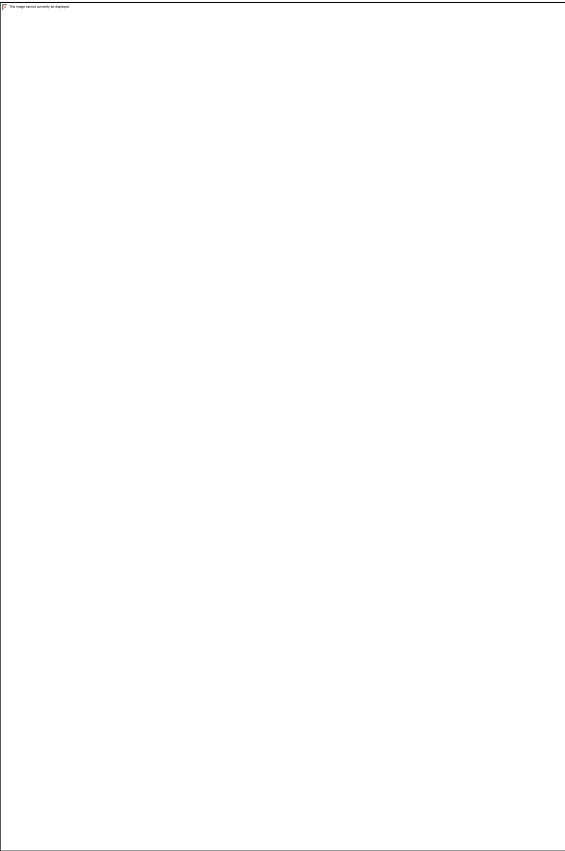
2 microphones  
total cost ~ 160 \$



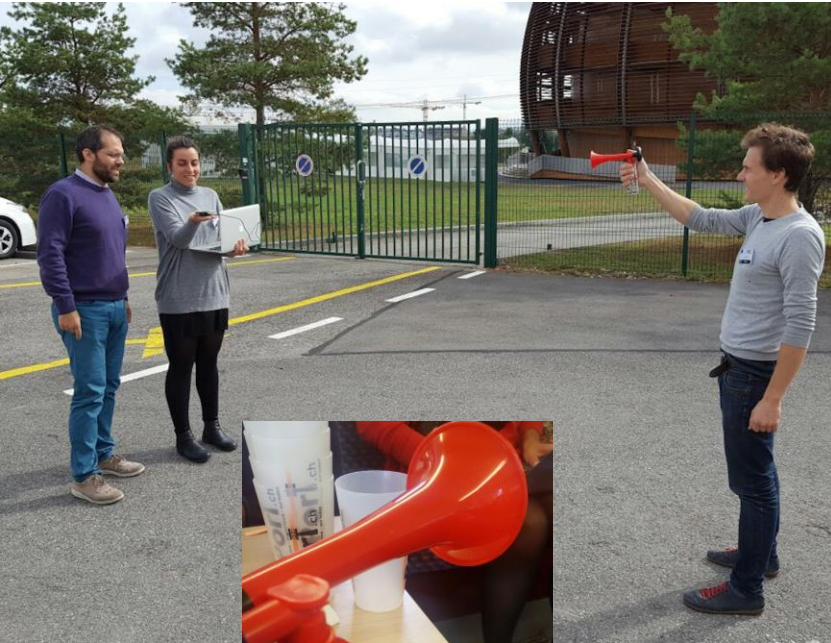
8 microphones  
total cost ~ 180 \$



# We coded...



# We tested...



And it didn't work



# So we coded and we tested again...

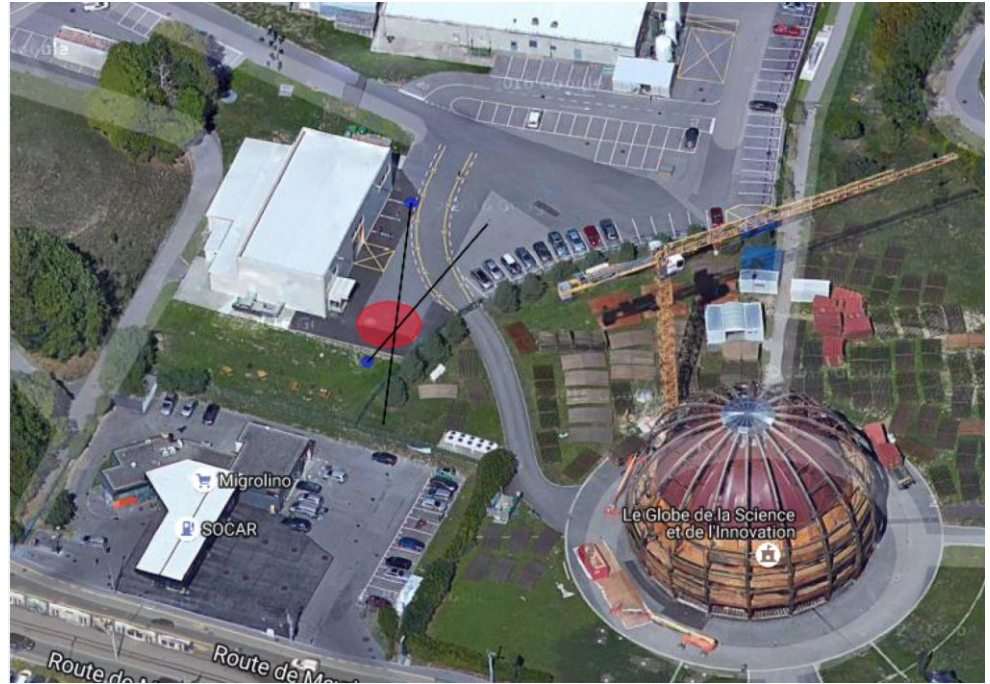


# And that's what we got...

## Reconstruction



## Visualization



## **Mass installation**

Partnering with

- GOs / NGOs
- Reporting Agencies
- Airports
- Hospitals

...

## **Kit distribution**

- Civilian involvement
- Smart city

## **Data provision**

- Trigger of social media search
- Fingerprint of event
- Source of prediction model

In near future,  
*e3e Monitor* technology and networks  
should become part of  
the ***ESSENTIAL INFRASTRUCTURE***  
of any urban environment.



# Team



Follow us: [www.e3emonitor.ch](http://www.e3emonitor.ch)



@e3eMonitor