



CEVA TECHNOLOGY  
SYMPOSIUM SERIES

Deep learning sound  
classifiers making smart  
devices listen

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TEL-AVIV

29.7.14

2AM





TODAY'S WORLD IS DIGITAL AND  
CONNECTED



HOME

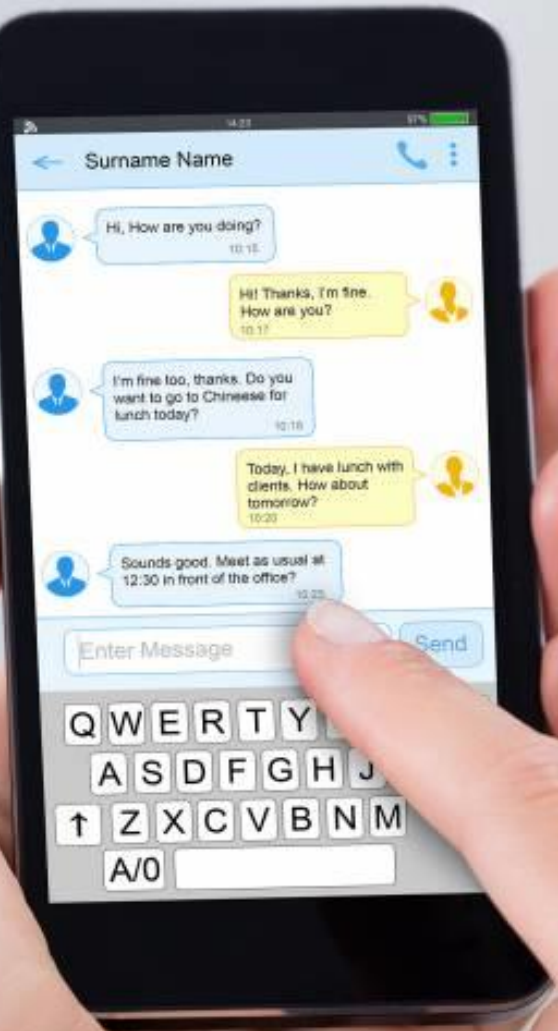


CITY



GENERATING  
DATA

CAR



TEXT



SENSORS



VISION

# TRENDS TODAY



SPEECH



SOUND IS THE MISSING LINK

WE UNDERSTAND SOUNDS

Every 5 seconds someone dies from injury



HOUSEHOLD  
ACCIDENTS



FIRE  
HAZARDS



TERRORISM  
AND WAR



ACTS OF  
VIOLENCE



ROAD  
ACCIDENTS

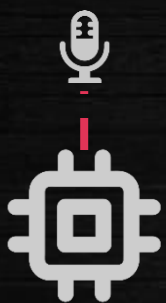


# A new breed of AI sound recognition

analyzes 'big data' generated by IoT  
devices

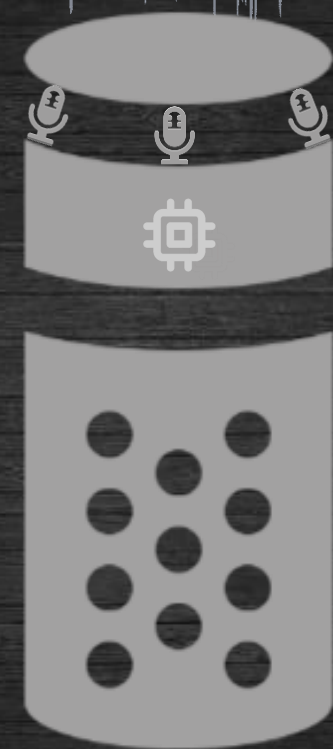
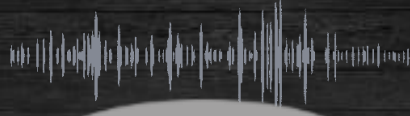
in order to predict and alert in life-  
threatening situations





- Phase 1  
Microphone
- Phase 2  
Pre-processing
- Phase 3  
Classification
- Phase 4  
Decision

CEVA-X2  
EDGE DEVICE  
ANALYSIS



- Phase 1  
Microphone
- Phase 2  
Pre-processing
- Phase 3  
Features conversion
- Phase 4  
Classification API call
- Phase 5  
Decision is sent to device

CEVA  
Teaklite-4  
CLOUD  
ANALYSIS



GUNSHOTS

TRIGGER YOUR CAMERA  
TO ALERT THE POLICE



SCREAM

TRIGGER YOUR MOBILE  
DEVICE  
TO SEND AUTOMATIC SOS  
MESSAGE





CALLS FOR HELP  
TRIGGER SMART SPEAKERS  
TO NOTIFY YOUR FAMILY

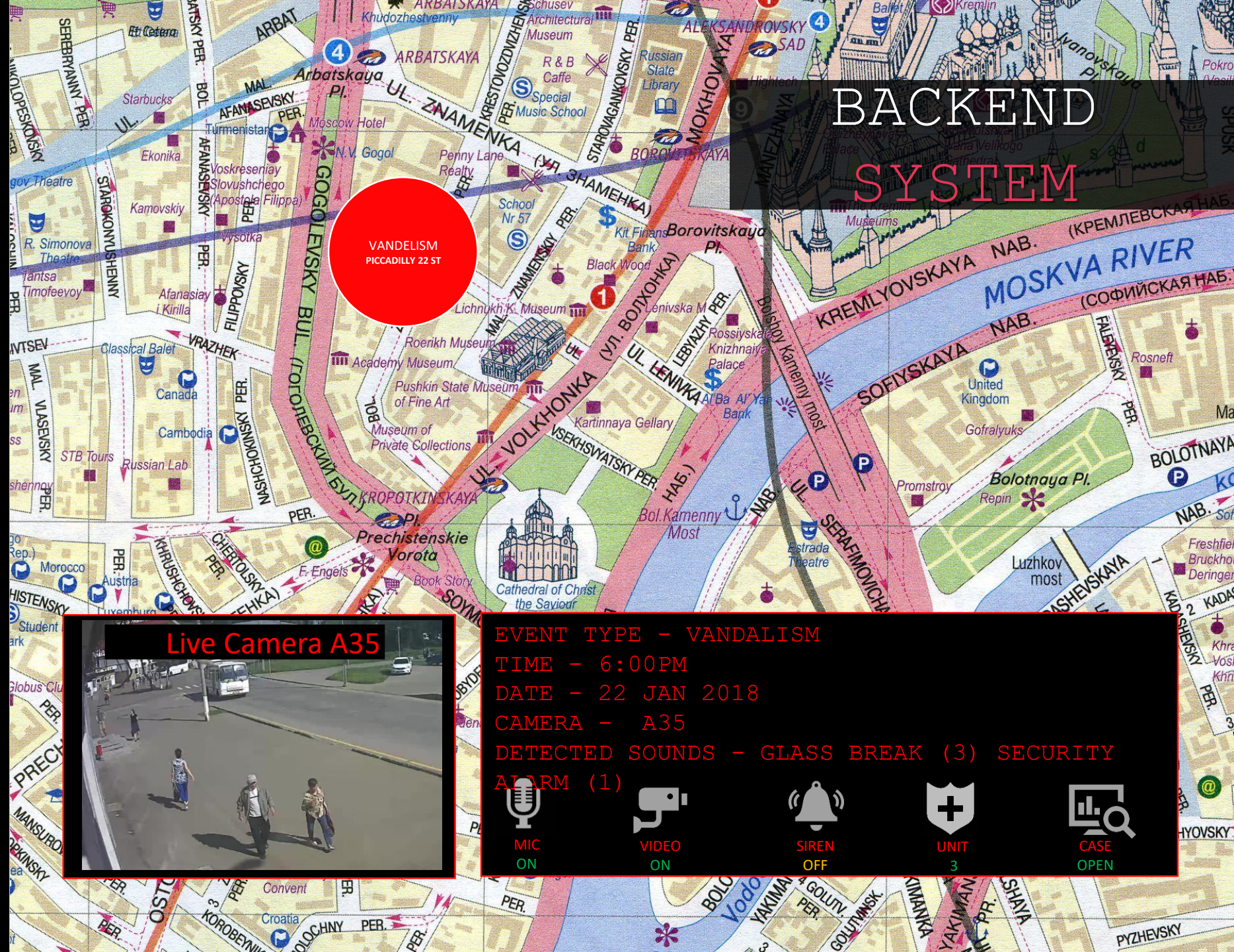
Live Feed - Moscow  
16:00 - 22.1.18

VANDALISM - 12:25  
(1)

GUN SHOT - 10:11  
(3)

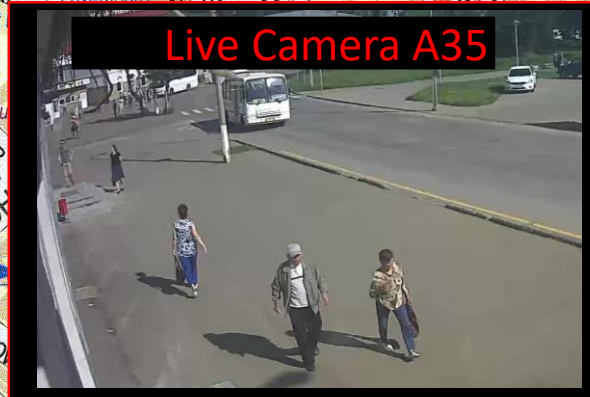
SCREAMS - 09:22  
(1)

DOG BARK - 08:50  
(5)



BACKEND  
SYSTEM

VANDELISM  
PICCADILLY 22 ST



EVENT TYPE - VANDALISM  
TIME - 6:00PM  
DATE - 22 JAN 2018  
CAMERA - A35  
DETECTED SOUNDS - GLASS BREAK (3) SECURITY ALARM (1)

MIC ON  
VIDEO ON  
SIREN OFF  
UNIT 3  
CASE OPEN

# COMPONENTS OF THE SOLUTION



## INTEGRATION PHASE ONE

CROSS-PLATFORM SDK OR API  
REAL-TIME LOCAL OR CLOUD  
PROCESSING  
UNIVERSAL CLASSIFIER  
AUDIO TO HASH



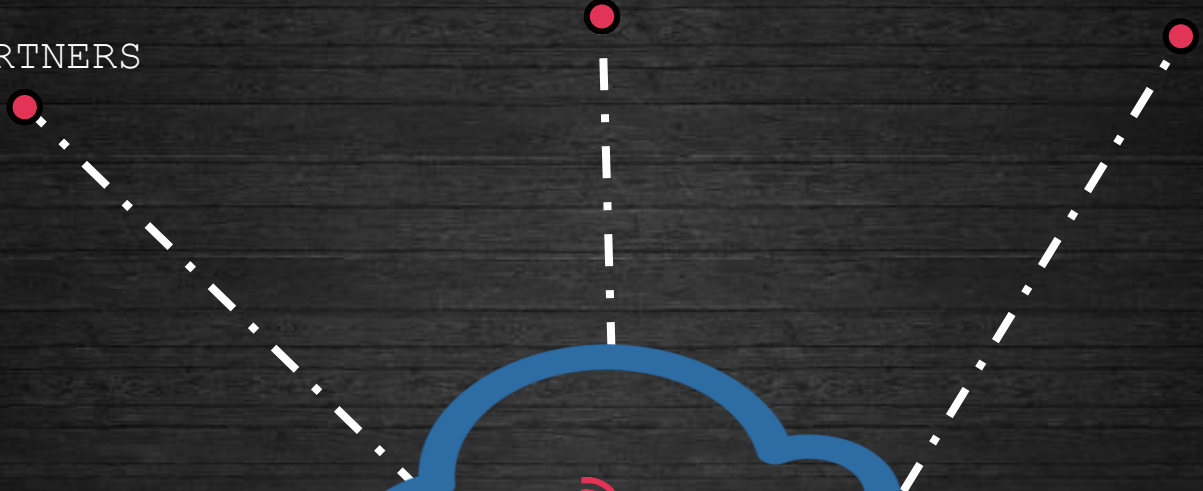
## OPERATION RESULTS PHASE TWO

DASHBOARDS  
NOTIFICATION DISTRIBUTION  
IOT CONNECTION AND TRIGGERING  
CLASSIFIER UPDATES



PARTNERS

CUSTOMERS





# BUSINESS MODEL

SDK  
LICENSING



API  
SUBSCRIPTION



or

- **HW vendors:** CCTV, smart speakers, mobile device, ATM vendors
- **VARs:** app developers, IoT platform providers, security service providers

## FORM FACTORS



**SMART  
SPEAKERS**

50M units



**MOBILE  
DEVICES**

1.9B units



**SECURITY  
CAMERAS**

105M units

# Thank you

**CEVA**<sup>®</sup>

 **abilisense**

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