ARTEMIS: DISTRESS DETECTION FOR URBAN ENVIRONMENT

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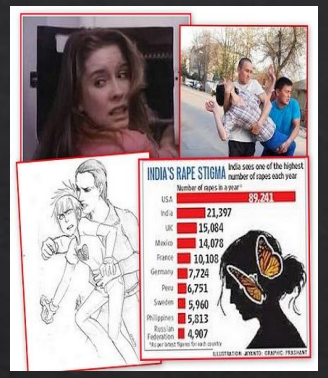
MOTIVATION



- Crime against Women Increasing day by day.

- More than 970 million Mobile Phone Users . 91% SmartPhone Users.
- Current Approaches require Voluntary Interaction.

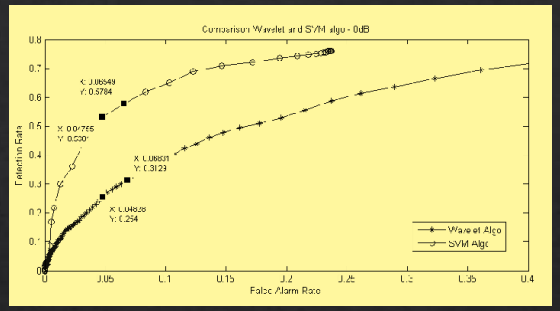
CONTRIBUTION

- We propose a two stage supervised learning framework using Support Vector Machines (SVMs)
- Proposed Framework provides improvement over prior work [1, 2].
- Extensive evaluation on data collected from varied environmental contexts
- An Smart Phone Application on the Android Platform.
- A Server Side Dashboard to Monitor Activity of participants, push updates and analyze data.

NUMBERS AND RESULTS

93.61% Accuracy

< 1.5% Error Rate



Improvement over Existing Methods

OBJECTIVES

- Detect distress using audio captured by smartphone microphones, available for analysis on a server/inform Authorities.
- Enable high detection rates and low false alarm rates from quiet to harsh environmental context.

NON-INTRUSIVE DISTRESS DETECTION

EVALUATION/DATA COLLECTION

- 16 Volunteers. 250 Hours of Data
- Real time evaluation
- Location Based Alarm Clustering

Fig 1. Data Collection

WORKING

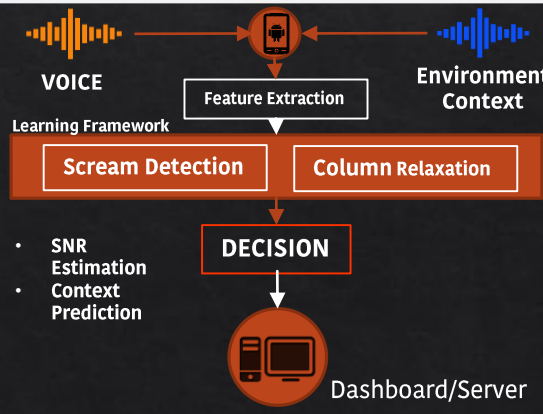


Fig 2. Flow

Features Used:
1. MFCC
2. Spectral Features
3. HOG

References:
[1] Weimin Huang, Tuan-Kiang Chiew, Haizhou Li, Tian Shiang Kok, and J. Biswas. Scream detection for home applications.
[2] Ntalampiras S., I. Potamitis, and N. Fakotakis. On acoustic surveillance of hazardous