3.1.2

Project Under Minor Research Grant 2017-18 Project code: 309

"Intelligent System for Women Security "

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Engineering and Technology
Ref: APD/237/323 of 2018]

INTRODUCTION

- Women all over the world are facing unethical physical harassment
- In modern India, women continue to face social challenges and are often victims of abuse, violent crimes.
- Since the prediction of such incident is not possible hence to minimize the possibility of physical violence (robbery, sexual assault etc.) by keeping all the help tools ready to safely escape from violent situation.
- This project focuses on a security system that is designed solely to serve the purpose of providing security and safety to women and children so that they never feel helpless while facing such social challenges.

LITERATURE SURVEY

- Smart girls security system designed for providing security to women in the society so that they never face physical harassment[3].
- Mobile based women safety application has been developed for women security in the societies for providing emergency help for example VithU app, Fight back app, etc [2].

OBJECTIVE

To preserve the security of working women and school Children develop Wireless portable safety device so that they can use whenever they face any type of harassment.

PROPOSED SYSTEM

A portable device which will have a pressure switch. As soon as an assailant is about to attack the person or when the person senses any insecurity from a stranger, he/she can then put pressure on the device by squeezing or compressing it. Instantly the pressure sensor senses this pressure and a conventional SMS, with the victim's location will be sent to their parents/guardians cell phone numbers stored in the device while purchasing it, followed by a call. If the call is unanswered for a prolonged time, a call will be redirected to the police and the same message will be sent.

METHODOLOGY

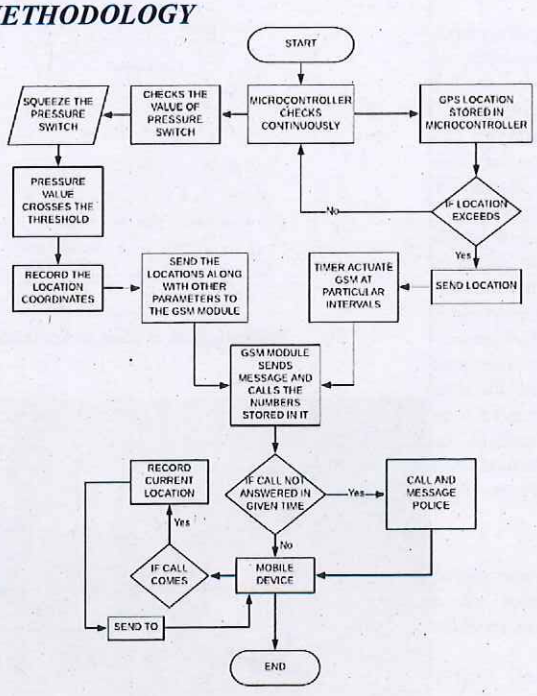

Fig. 1. Women and Child Security System Block Diagram

- Step1: Pressure Switch is activated by crossing the threshold value which actuates the microcontroller.
- Step2: Microcontroller then records the location using GPS module and along with some other required parameters provides it to the GSM module.
- Step3: GSM module sends the messages to the phone numbers stored in the SIM with the location following a call to those contact numbers for some time slots.
- Step4:If the call is not answered by them, it will be redirected to the police.
- Step 5: A geofence is created in the beginning by specifying the coordinates of the location. If the person crosses the geofencing, the device will send notification to the cell phone number at particular intervals.
- Step 6: If the parent/guardian calls to the device then the device will send the victim's location to the parent.

RESULT

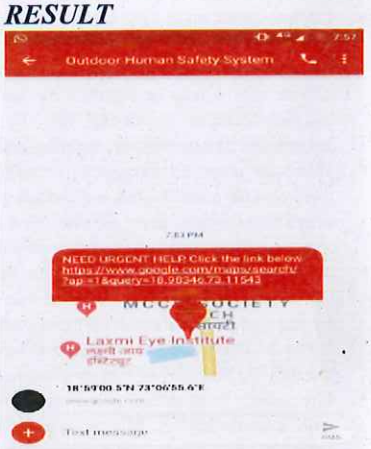

Fig. 2. Describe the location and message to parents.

CONCLUSION

- This paper survey about the existing safety application for women and children.
- It comes out with idea for making safe environment for women and children in the society, and allows them to go anywhere fear free.
- It help reducing the crime rate against the women and children.

ACKNOWLEDGEMENT

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Sunil K Punjabi, Suvarna Chaure, Ujwala Ravale, Deepti Reddy, "Smart Intelligent System for Women Security", The 9th IEEE Annual Information Technology, Electronics & Mobile Communication Conference, University of British Columbia, Vancouver, Canada, Nov 1-3, 2018.

University of Mumbai Minor Research 2017-18
"HUMAN SKIN AS TOUCH SCREEN"

Engineering and Technology
Research Project no: 408(Ref No. APO/237/323 of 2018)

INTRODUCTION

- Devices with small size have some limitations. Limited size gives less interactive area.
- main reason for appropriating the Human body as an input device are: Easily accessible by hands. Popularity of mobiles devices increasing day by day due to the advantages like portability, mobility and flexibility.
- There are many advantages of small size mainly we can carry it with comfort, but the limited size gives very less interactive surface area. So we need a large interactive area to use but we want to easily carry it in our pocket
- A novel approach is presented in this research which solves the size problem. We can use our skin which is largest part of our body as an input surface. When user tap on its body part, some mechanical vibrations propagates through the body, those vibrations are captured by sensor
- The sensor is mounted on armband which is interfaced with microcontroller. Microcontroller processes the data finds the no of taps. Microcontroller is interfaced with mobile phone with the help of Bluetooth module. So according to the taps, desired operation is performed. This approach provides an always available, naturally portable, large, and on-body finger input system.

LITERATURE SURVEY

•Skinput is a collaboration which majorly uses the principle of always available input, bio-sensing and acoustics and a Skinput technology provided by Microsoft that turn the body into touching interface.[1]

•The widespread adoption of the mobile electronic devices and the advancement of wearable devices, they contribute to encouraged the development of compact devices.[2]

OBJECTIVE

•Reduce worry about keypad.

•People with larger fingers get trouble in navigating tiny buttons and keypad s on mobile phones. With skin input this problem disappears.

•To avoid need to interact with the gadget directly.

•An aid to paralyzed persons. Information about non sighted use is interesting for accessibility reasons and for condition in which people can't look at phone.

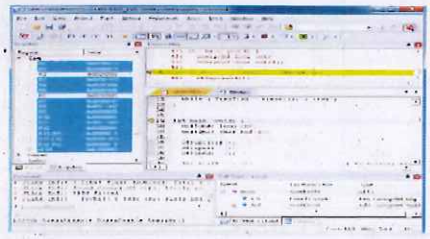

Fig.:1 Keil IDE

Fig.2: Authentication of User in Application

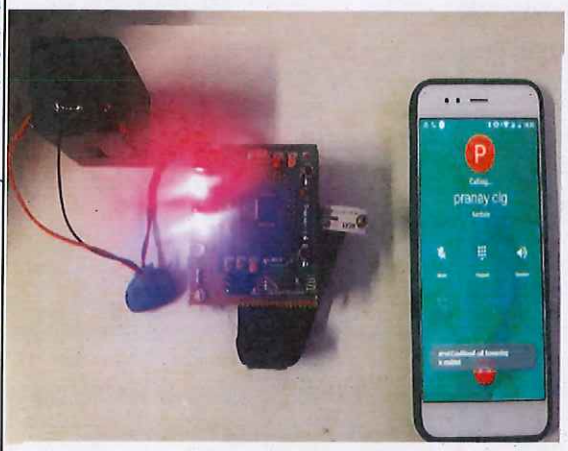

Fig.3: Output after one Tap

• Fig.4: Output after three taps

Fig.5: Output after four Taps

Fig.6:Working Model

CONCLUSION

•Our system describes a wearable bio-acoustic sensor used to detect finger tap on the hand and the forearm. This system performs well even when the body is in motion.

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[3] Shaikh Abdur Rehman Mohammed Sadique, Dept of Electronics, Pillai Institute of Information Technology(PIIT), Engineering, Media Studies Research, University Of Mumbai Pragnesh N Shah Professor,Dept of Electronics Pillai Institute Of Information Technology, Engineering, Media Studies Research, University Of Mumbai

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University Minor Research Projects Poster Presentation 2017-18

Synthesis of magnetic nanoparticles and investigation of their physical, and structural properties for use in environmental applications

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INTRODUCTION

- Ferrites with spinel structure represent important group of magnetic materials
- Different preparation techniques, doping and substitutions play a crucial role in controlling the properties of ferrites

EXPERIMENTAL DETAILS

- Synthesis Techniques
  Sol–gel auto combustion method
  Co-precipitation method
- Characterization
  X-ray diffraction
  ATR-IR
  Scanning Electron Microscopy
- Samples Synthesized
  $Ni_xCo_{1-x}Fe_2O_4$

STRUCTRUAL STUDIES

- Ferrites with spinel structure represent important group of magnetic materials
- Different preparation techniques, doping and substitutions play a crucial role in controlling the properties of ferrites

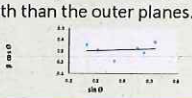
RESULTS AND DISCUSSION

The average crystallite size is Calculated from the most intense peak (311) using the Scherrer's

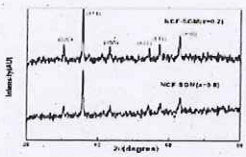
$$D = \frac{k\lambda}{\beta\cos\theta}$$

INHOMOGENEITY

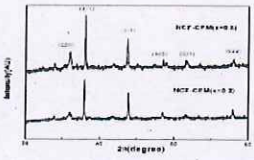
- Strained of the homogeneity plots
- Agrowth is observed from the positive slope positive slope indicates that the inner planes of the unit cell grow faster whereas negative slope indicates slower growth than the outer planes.



STRUCTURAL PROPERTIES



System-NCF-SGM-$Ni_xCo_{1-x}Fe_2O_4$(x=0.2,0.8)

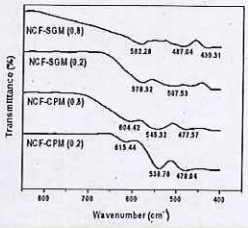


System-NCF-CPM-$Ni_xCo_{1-x}Fe_2O_4$(x=0.2,0.8)

Samples	Interplanar spacing (d) Å	Lattice parameter (a) Å	Crystallite size (D) Å	Density (ρ) Kg/m³	Inhomogeneity
NCF-SGM(x=0.2)	2.516	8.345	4.258	5361	0.095
NCF-CPM(x=0.2)	2.5	8.291	5.499	5464	0.089
NCF-SGM(x=0.8)	2.508	8.318	4.319	5411	0.172
NCF-CPM(x=0.8)	2.484	8.238	5.996	5573	0.124

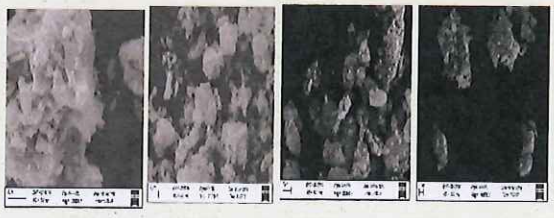
Table 1. XRD analysis

ATR-IR STUDIES



- In 650 – 400cm^{-1} wave number range, the broad metal–oxygen bands are observed
- The peaks in the range of 600–550 cm^{-1} region are detected due to tetrahedral metal–oxygen stretching vibration and the peaks in the range of 550–385 cm^{-1} region arise from the metal–oxygen stretching vibration at the octahedral sites.

SEM IMAGES AND ANALYSIS



NCF-SGM (x=0.2, 0.8) NCF-CPM (x=0.2, 0.8)

- In the SEM images particles of µm size are seen in the samples
- SEM micrograph depicts that the samples contain micrometrical aggregation of tiny particle
- Particle size is found to be smaller for co-precipitation method as compared to sol gel auto combustion method

CONCLUSIONS

- Formation of cubic spinel structure
- Lattice parameters of the samples decreased with increasing Ni content due to the smaller ionic radius of Ni
- Sol-gel method gives reduced lattice parameter, increased crystallite size and density
- Strained growth has been observed
- Shifting in the peaks appeared due to cationic exchange in tetrahedral and octahedral interstitial sites.
- Smaller particle size has been observed by co-precipitation method.

PUBLICATIONS

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FUTURE PLANS

- Preparation of Films
- Green Synthesis Techniques
- Gas Sensor Application

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