Application for Smart Intelligent Protection for women and children

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ABSTRACT- *Security for women and children is the most important problem in the global scenario. At a rapid pace, violence against women and children has increased. In 2019, 39,000 criminal cases were reported by the National Crime Record Bureau (NCRB). Any nation's growth depends on the growth of women and children, so technology must be implemented to solve the primary global social problem. The most successful strategies used to establish the Women and Child Significant Contributions are Machine Learning and Multi-Sensor Fusion. The technique of information fusion approximates data obtained by multiple and eventually heterogeneous sensors to produce assumptions which can be obtained with a single sensor. This article describes specifics of different methodologies, algorithms, architectures, models for women and child protection devices. We propose a GPS-based safety system for women and children with dual security features to solve this issue.*

1. Introduction

The data Processing is a software which accommodates heterogeneously data from multiple sources and produces better results than the total amount of about the data [1][2][3].

In order to make intelligent decisions at the final level, we have to take special care while fusing the data and generating inference variables on the results of combination. Several standard techniques of information fusion are available, such as the Bayesian network, the theory of Vapnik shaper, Extended kalman, middle limit independence assumptions, probabilistic reasoning, and genetic algorithm.

A modern, uncontrolled algorithm provides the proposed method to aggregate data from multiple homogeneous or heterogeneous sources and make smart decisions by producing inference variables. The device primarily focuses on the real-time reduction of conflicts and ambiguity from sensory data and makes precise and wise decisions according to applications.

In the current age, due to various rising crimes against women and children, women's and children's security is a very important issue. We propose a GPS-based Women and Child Welfare System that has a dual safety function to solve this issue. This unit consists of a system that guarantees dual alarms in the event of abuse of a woman and child. If she even feels she'd be in trouble, a woman can turn on this machine.

1.1. Concept of Information Fusion

Modified learning have been used over the years to describe the process of information fusion, namely data fusion, sensor fusion, aggregation of data, multi - sensory integration, communication of data, then frameworks, techniques and applications.
The relationship around multi-sensor/sensor fusion, multi-sensor integration, data aggregation, data fusion, and knowledge fusion [4] is illustrated in Figure 1. Combination is a hybrid approach for merging,

combining or merging two or more items to provide reliable, robust and unbiased options rather than uncertain choices. The fusion process can be represented as an average in simple mathematics.
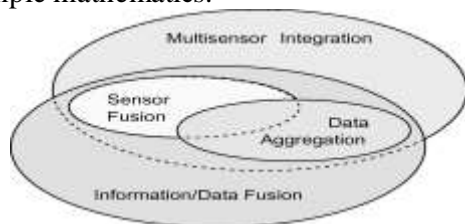

Figure 1. Comparision of Data

The Researcher [7] perfectly described the fusion of information as a "structured or moderately communication of knowledge from different sources into a single variable for efficient decision without control." Processed data is the input to the process of knowledge fusion, and the input sources could vary from sensors, photographs, databases to information regarding living things.

Computer vision is a component of information fusion that collects information from sensory resources. Sensor fusion leads to variations in sensor types, providing better performance, evaluation, efficiency, and decision-making. The sensors have varying strengths and weaknesses and the strength of one type can be compensated for the weakness of another type. If any malfunction occurs, external sensors may act as a backup [6].
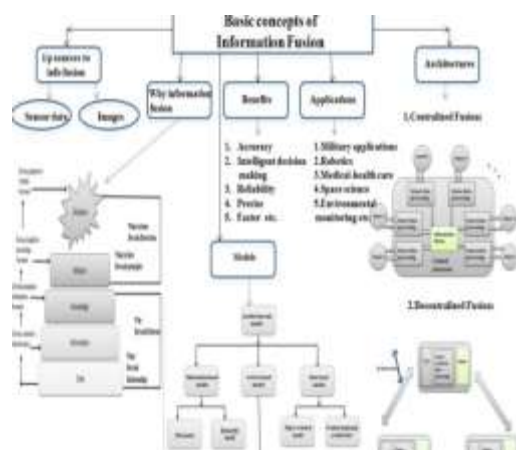

Figure 2. Basic fundamental concepts of information fusion

The aggregation of intelligence is beneficial in order to improve accuracy, reliability and decision-making by reducing uncertainty. Its quality is more precise, quicker. Besides that, data fusion provides another benefit as the strength of one form source can account for the lack of another type.

In data transmission, the overall communication load is reduced by avoiding the transmission of redundant messages through information fusion[4][16]. The main goal of intellectual ability fusion is object classification, designation, tracking and prediction tasks in various domains. In military, space science, medical-health care and environmental management software, it is now normally used for a few days.

For our suggested system, there are several models that we used JDL model to fuse the information from diverse sources and Thatarthy model for decision making. Two dimensions are considered to be data-in-information-out, and data or function for this system.

2. EXISTING SYSTEM

The current protection framework for women and children built by different researchers can be divided into four distinct classical categories.

2.1 Mobile Based Android Apps

Khoya-Paya, Abhaya, SafetyPin, TellTail, FightBack, Women Empower, On Watch, VithU are various basic security apps for women and children that transmit adjustments to the family, friends and police of the victim. Sending adjustments continues by pressing the panic button or shaking the cell phone.

2.2 Micro-controller Based Prototype

Raspberry Pi, Arduino Uno, ATMega328, ARM7 controller with GPS-GMS panic button integrated module. The communication of the alter process starts with a panic button pressed, then alters are sent to the family, friends and police of the victim. Some deep descriptions of articles are

as follows: This process depends on the pulse rate, and false warning possibilities can be available [35]. When the user activates the pressure switch, it performs tasks including such sending panic messages, communicating location and contacting registered numbers, redirecting to police if not answered. This machine is relatively broad to hold, and with this approach, immediate response is not possible. Tasks can be detected by heartbeat, automatic registered number call, nearby police station identification, and ring making. Ideas are not represented and not enforced. Some non-emergency situations may cause the heart temperature to increase.

2.3 Internet of the Things (IOT) and Micro-controller Integrated System

The Cloud Server microcontroller program is integrated with the IOT Web Server. Both evidence and geospatial locations of victims are preserved on the Web Server. The alters are sent to the family of the suspect, colleagues, NGOs and police.

2.4 Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL)

The level of information is too enormous for complete investigation, and the magnitude of alleged connections and links between different sources of information is unreasonably extraordinary for any professional to test all speculations and determine all the aspirations covered by the information. For opening doors to cover the application of big data opportunities, AI (ML) is suitable.

Intelligence is a computer knowledge technology that gives ability to automatically develop and adapt from experience without being explicitly programmed. Artificial intelligence involves the creation of computer software that by trying to access while using data, can learn for themselves [12].

They get awareness using costules. Focus on extracting features and using statistical features, deep learning, multi-sensor fusion, human behaviour monitoring, machine learning. This helps to reduce computing time and to improve accuracy[8][26].This focuses primarily on statistical analysis to maintain interactions between modules to optimize the design and performance of IFS. As per the study, since the method absorbs memory and takes a long time to react, there have been weaknesses to this paper [26].

3. Proposed Model

The newest aspect of the proposed system is the combination of App, IOT, Controller Prototype with a neuro-centric approach to machine learning. Real-Time sensor data is collected by multiple sensors. With multiple parameters, a standard set of information can be generated.
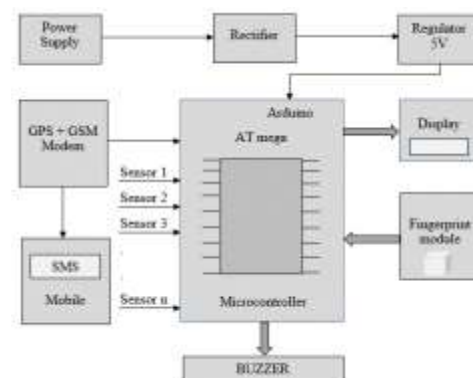

Figure 3. The Working of the Proposed System

In Figure 3, the operations of the proposed system are reflected. Using GPS sets of data and multiple parameters, a safe or dangerous zone can be determined. Women or Child

Offender, by the Fingerprint module, Women or Child proves its identity when it reaches some lonely, serious disease. Thus if the victim is struck, all values change, such as temperature, blood pressure and the voice of the victim.

4. EXPERIMENTAL RESULTS

The research objective obtained by the implementation of the ATMega328-integrated multi-sensor and GSM-GPS module. The protype independent testing of the Mobile Sensor App has been performed. Usability of the ECG, Emotion GPS, AReM Human Activity Recognition (HAR) Data Analysis in study. Description of the Prototype and Mobile Sensor App.

Figure 4.1 A. Rescuer Mobile App for Women and Child Safety

Figure 4.1 B. Rescuer Mobile App for Women and Child Safety

Figure 4.2. Prototype for Women and Child Safety

5. CONCLUSION

This paper presents findings into various existing safety programmes for children and women. Using Sensor Module Prototype, Mobile Sensor App and Machine Learning algorithm, the creative and intelligent MLDL approach for women and children's safety was implemented.

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