

Safety Enabled Intelligent Gas Stove System to Prevent Accidents -A Python Deep Learning Approach

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ABSTRACT:

The latest technologies have been using smart embedded systems as the first thing. Due to easy access of stove, there may be chances of gas leakage. To Prevent child from accessing stove we are using child lock system. We are designing a stove that will detect age of the person who is using the stove by passing image. Our main aim is to stop child from accessing stove and the child would not able to switch on the stove. If a child gets to turn on the stove can *entitle* safety via child detection alarm. We are using an ARDUINO UNO. Also; we are applying a deep Learning object detection algorithm for the system execution. The stove is ensuring safety remotely as well as manually which will try to prevent

In this way we can prevent some of the accidents that occur at any time from a stove.

TERMS:SAFETY,BUZZER PYTHON.

INTRODUCTION:

The combination of internet and embedded structures are the most growing fields in latest technology. Generally a embedded device is used to execute a single operation. An embedded system is a combination of computer hardware and software designed for a specific function. Embedded systems may also function within a larger system. The systems can be programmable or have a fixed functionality. Modern embedded systems are often based on microcontrollers.

In our research, we are introducing a hardware gadget that is based on gas smart stove. People will have the control to operate and to monitor the devices through an IOT. In Real-time application age detection will help child not to cause gas leakage accidents.

LITERACY SURVEY:

TITLE 1:Gas Leakage and Fire Detection using Raspberry Pi

AUTHOR:Sourabh Jamadagni, Nikita Chougule, Priyanka Sankpal, Shailesh Gurav, Shwetal Patil

YEAR:2019

DESCRIPTION: This paper presents the growth in the industrial monitoring system's design using Internet of Things (IoT). The sensor used for the development of this system is MQ-2 which detects the leak age of gas at any atmospheric condition and fire sensor as a simple and compact device for protection against fire. In gas sensor system, Raspberry pi plays an important role such that all the components are interfaced to it. This avails the observer to notice the changes from anywhere in the world. The requirement of a gas detection system is to monitor the surroundings continuously. When gas and smoke is detected then system will send short message service (SMS) to the user then user will take respective action.

age estimation from real-world and unconstrained face images is rapidly gaining importance.

TITLE 2:"Deep Convolutional Neural Network for Age estimation based on VGG face model"

Authors:ZakariyaQawaqnehArafatAbumallouhBuket D. Barkana

DESCRIPTION:"Automatic age estimation from real-world and unconstrained face images is rapidly gaining importance. In our proposed work, a deep CNN model that was trained on a database for face recognition task is used to estimate the age information on the Adience database. This paper has three significant contributions in this field. (1) This work proves that a CNN model, which was trained for face recognition task, can be utilized for age estimation to improve performance; (2) Over fitting problem can be overcome by employing a pretrained CNN on a large database for face recognition task; (3) Not only the number of training images and the number subjects in a training database effect the performance of the age estimation model, but also the pre-training task of the employed CNN determines the performance of the model".

TITLE 3: Automatic System for Li-Ion Battery Packs Gas Leakage Detection

AUTHOR: Valentin Mateev, Iliana Marinova, ZhelyazkoKartunov

YEAR: 2018

DESCRIPTION:

Battery gas leakage is an early and reliable indicator for irreversible malfunctioning. In this paper is proposed an automatic gas detection system with catalytic type sensors and reconstruction approach for precise gas emission source location inside battery pack. Detection system employs a distributed array of COsensors. Several array configurations are considered according to their measurement efficiency. Reconstruction algorithm is based on fast interpolation technique very suitable for real time data processing. Estimation of reconstruction method accuracy is made by computational model of gas diffusion.

TITLE 4:Gas Leakage with Auto Ventilation and Smart Management System Using IoT

AUTHOR:AfsanaMim Anika, Ms. Nasrin Akter, Md. NiamulHasaN, Jannatul Ferdous Shoma, Abdus Sattar

YEAR: 2021

DESCRIPTION:In the evolving smart home architectures, the issue of gas spillage and fire is still remaining as a significant hindrance for designing a comprehensive, safe and sustainable kitchen model. On the other hand, security has also been significant challenge in this digital era. In urban areas, most of the kitchens

In such case, Spillage of gas increases the risk of fire accident, suffocation or a blast. To eradicate this challenge, smart management system viz. gas leakage detection and fire detection system should be developed. In this paper, Arduino UNO microcontroller was utilized to build a smart gas detection system with many usable sensors (MQ2, IR Fire Sensor) and actuators (air fan, buzzer). When gas spillage is recognized, the client will be intimated through SMS and at the same time they will receive notification via blink application. The proposed system can detect fire, gas leakage and it also has the ability to take further steps and decrease gas concentration via auto air ventilation and extinguish fire with water. The proposed method will help to improve the safety and reduce the death toll and reduce the damages that occur to the surrounding environment.

SCOPE OF THE PROJECT:The aim of our project to prevent the gas leakage accident from the child at home and automatically monitoring and controlling the system.

EXISTING SYSTEM:In and ON Existing method, there was no age detection ON/OFF by servo motor depends on age.

DISADVANTAGES:

1.It creates fire accident.

3. Child easily access the dangerous products.

PROPOSED SYSTEM:

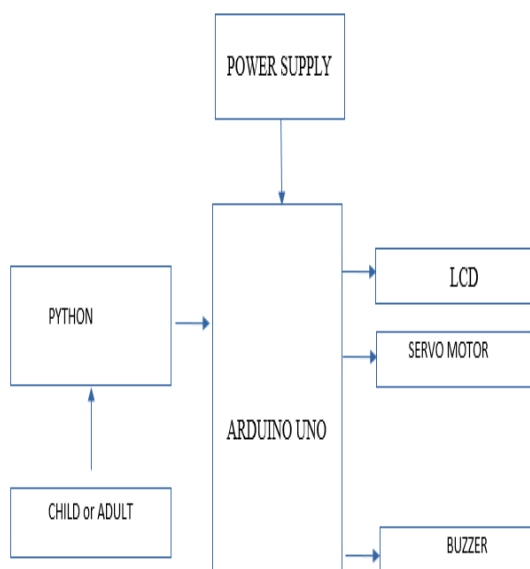
In proposed method, here detecting age and ON/OFF the servo motor depends on age using python deep learning. In this project child don't access the gas stove and we are used age detection depend upon the gas valve will be open. The dataset given from the python machine learning. In this project child don't access the gas stove and we are used age detection depend upon the gas valve will be open. The dataset given from the python machine learning.

PROPOSED SYSTEM

ADVANTAGE:

1. Safer by using age detection.
2. Child did not access the gas stove.
3. Age detection provide more security.

BLOCK DIAGRAM:

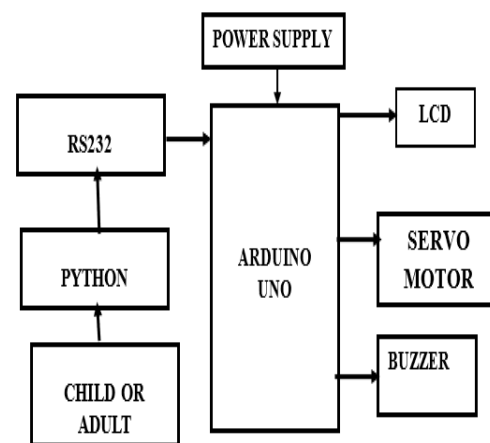


MODULES NAME:

1. Alert through the python dataset
2. Controlling

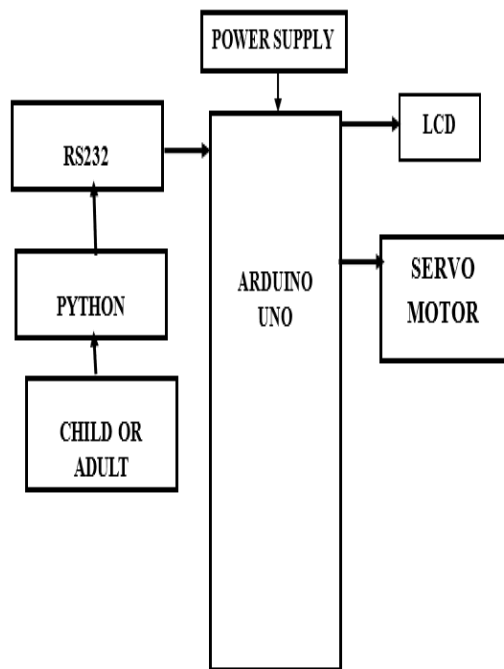
MODULES DESCRIPTION:

1. Alert through the python dataset



In this mode the RS232 interface with the ARDUNIO UNO. Servo motor will control the valve. When we give the child dataset the solenoid valve not open and alert through the buzzer. When we give the adult dataset, the solenoid will be open automatically.

2. Controlling: Once the python data set predict it will pass the data through rs232 cable Arduino uno will receive the data and control the valve, child will occur means servo motor will close the valve then adult occurs only servo motor will open the valve.



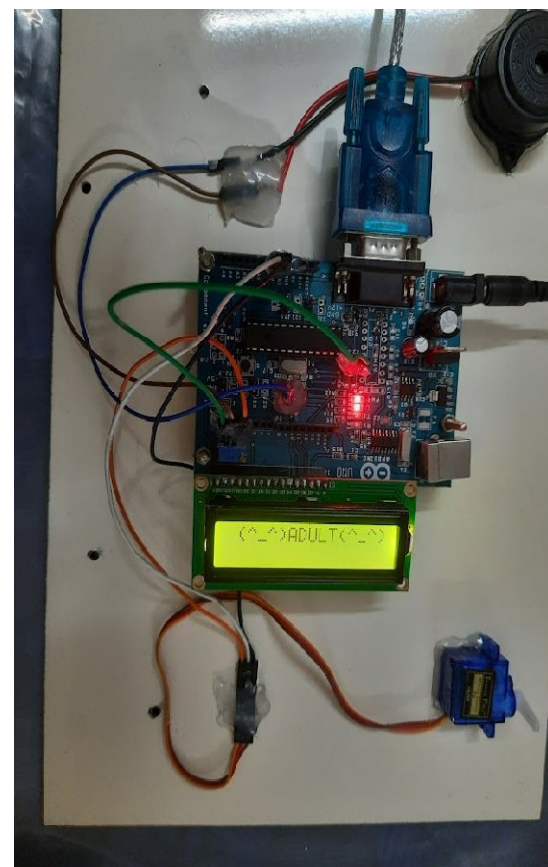
**BLOCK DIAGRAM
DESCRIPTION AND
WORKING:**

The ARDUINO UNO is used in this proposed method to control for safety. The LCD is used to display the current execution process. The python image processing is used to detect the person age. Servo motor is used to ON and OFF the valve. If child detect by python image processing automatically buzzer will alert. The buzzer is used to alert.

OUTPUT:



When adult image is passed:



When child is passed:



APPLICATIONS:

It is used in used for AI based gas stove in home appliances.

FUTURE ENHANCEMENT: This device can be introducing compactly so that it can be easy to carry.

Further this alert system can be monitored through AI system.

ADVANTAGES:

Safer by using age detection.

Child did not access the gas stove.

Age detection provide more security.

CONCLUSION:In this project, research to classify facial ages over static facial images using deep learning techniques was developed. There were many solutions introduced for this complex problem. Python deep learning technique can provide us with improvised result. By using this technique, we can check the person age moreover we can find their expressions. Not only in this particular area we can use this python age detection in real time scenario where detection of age plays a key role like in movie theatres where particular movies will have a age limit. Nowadays, facial age detection software includes the use of feature engineering. A solution totally based on feature learning does not seem close yet because of a major limitation. Thus, age classification could be achieved by means of deep learning techniques

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