Blind Guidance System Using IOT

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Abstract- The most difficult tasks faced by the visually impaired persons is identification of people. In order to help the visually challenged people, I have designed a guidance system that helps visually-impaired people by giving alerts over obstacles, in front could help them in walking with less accident. It outlines a better navigational tool for the visually impaired. It consists of an ultrasonic sensor to give information about the environment
Keywords –Face recognition, image processing,Raspberry Pi, IOT.

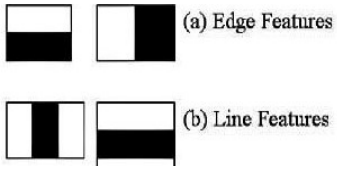
I.INTRODUCTION

According to an estimation there are 253 million individuals live with vision disability 36 million are blind and 217 million have direct to extreme vision impairment. Among blind and have moderate or severe vision impairment, 81% people are aged 50 years and above. Sometimes loss of vision is related with a misfortune of freedom. Blind and visually impaired individuals often face many challenging situations in their day to day life. One of the biggest problems blind people face is difficulty with navigation. Individuals who are completely blind or have disabled vision as a rule have a troublesome time navigating outside the spaces that they're usual to. They had to depend on the external support system which can maintained by humans, guided dogs, or special electronic gadgets. Another major problem they had to face is identifying a person in a variety of social interactions. In today's world many researchers have discovered some technological devices and tools to aid the blinds and prosopagnosia disordered individuals. A device. The rest of the paper is organized as follows. Proposed embedding and extraction algorithms are explained in section II. Experimental results are presented in section III. Concluding remarks are given in section IV.

II.PROPOSED ALGORITHM

2.1 Hear Feature Selection:

Hear feature considers adjacent rectangular regions at a specific location in a detection window, sums up the pixel intensities in each region and calculates the difference between these sums.Integral Images are used to make this superfast.



2.2 Integral Images

to the left of the input pi
Creating an Integral Ima
high. The first row and c

nding input pixel with all pixels above and

vill be (w+1) pixels wide and (h+1) pixels
to the sum of all pixels before it.

Watermark Extracti

5	2	3	4	1
1	5	4	2	3
2	2	1	3	4
3	5	6	4	5
4	1	3	2	6

Original image

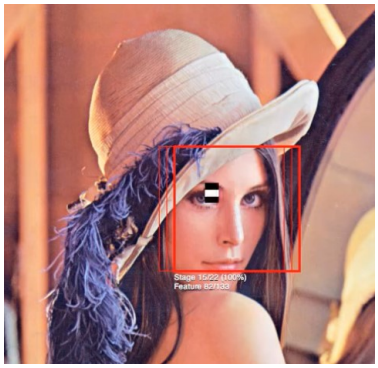
0	0	0	0	0	0
0	5	7	10	14	15
0	6	13	20	26	30
0	8	17	25	34	42
0	11	25	39	52	65
0	15	30	47	62	81

Integral image

2.3Adaboost Training.

Ad boost selectsthe best features and trains the classifiers (cascading classifier) that use them. This algorithm constructs a "strong" classifier as a linear combination of weighted simple "weak" classifiers.
The process is as follows,

- During the detection phase, a window of the target size is moved over the input image, and for each subsection of the image and Hear features are calculated.
- This difference is then compared to a learned threshold that separates non-objects from objects.



2.4Histogram and LBP Image:

We compare the histograms of the test image and the images in the database and then we return the image with the closest histogram. As an output we get an ID of the image from the database if the test image is recognised

2.5Emergency Button:

Along with this we added an emergency button which will be helpful in an emergency situation. If the user is in trouble, he can immediately press the emergency button. PS will track the user's location and an email will be sent to those people whose details are already saved in the database. Email consist of user's location details and the picture of the person who makes trouble to the use

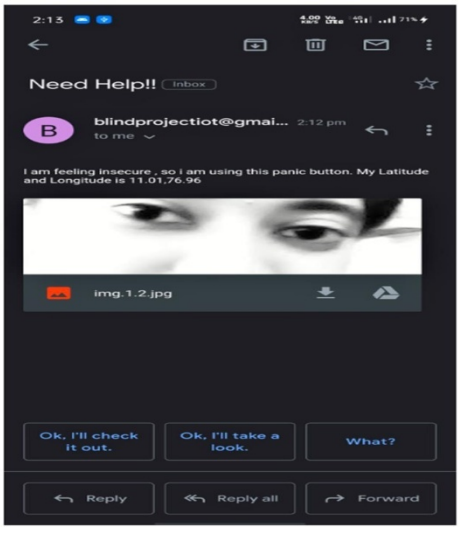


Fig: 2.6 SOS message to mail

IV.CONCLUSION

Facial recognition system concludes that the system will help the visually challenged in several purposes. It uses Raspberry Pi kit to execute this process. The Raspberry Pi kit is a small board which can be used with any operating system like Linux FreeBSD, Nets, and RISC OS. It will improve the cognition of the visually impaired. This proposed system does not use any prior knowledge about the position of the people. The experimental

evaluation is performed on a large dataset. The system will take input from the camera and gets the edges of the images. The accuracy of the face detection and recognition of the system has 92% which is comparatively perfect then the previous detection techniques.

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