

Use of image processing through Emotion Detection

Anindita Chatterjee, Himadri Nath Moulick, Manas Karmakar, Dr. Chandan Koner,

Abstract—In this paper, presenting a watch which can handle many properties. We can allow to maintain this watch and adding 4 micro camera in this watch in both sides. Though this watch have 4 micro camera so it can capture the whole thing in front of you. This watch can have a micro-chip slot and it can be supported upto 32 gb expandable memory chip, which can store the video clippings arounds you.

Generally 4.5v battery is used in a normal watch but as we adding some features in this watch like micro-camera, memory chip so we are using high voltage battery 15.5v to handle this watch. We are using micro-camera, memory chip in this watch, its totally depends on the high voltage battery.

Keywords—Watch, Micro camera, Image Processing, Emotion detection

I. INTRODUCTION

Criminal record generally contains personal information about particular person along with the photograph. To identify any criminal we need some identification regarding the particular person. This problem aims in detecting criminals through any picture given by eye witness or from any source of any quality. A filtering algorithm used to upgrade the image and through video surveillance situated at any local places like airport, railway station connected to the system any persons face found match with that of the suspected criminal is identified. [2] In today's newspaper the greatest threat that is evolving is crime like, robbery, rape which is increasing in rapid rate. Now, because proper technological support is not available so maximum case remains unsolved and criminals remain unidentified. [3] To eradicate or lessen this social threat I try to implement this system which will help in tracking criminals faster. [1]

Anindita Chatterjee works in Tata Consultancy services, Kolkata, West Bengal; e-mail: anindita_star24@rediffmail.com).

Himadri Nath Moulick works as Assistant Professor in Aryabhata Institute of Engineering, Kolkata, West Bengal; e-mail: himadri80@gmail.com).

Manas Karmakar is Student, manaskarmakar11@gmail.com).

Dr. Chandan Koner works as Associate Professor in Dr. B.C. Roy Engineering College

This system after getting image from anywhere like from eyewitnesses or anywhere else is kept in the database if required by updating it through filtering algorithm and any match made of images captured by the videos at local places is immediately identified. [3]

II. PROBLEM STATEMENT

Face Detection & Identification System (For Tracking Criminals) using Eigen Face Method.

III. PROBLEM DEFINITION

There are five Sensory organs pertaining to, our Human Senses; they are: Eyes, Ears, Nose, Tongue and Skin. Each of these organs having respective properties. They serve just like Input Sensors, able to capture five respective senses, having different natures. [6] This Project Proposal is centered on "Appearance of something(s)".

In this project One End is a Computer; and the Other End is a non-living object the Digital Cam, which is getting the Reflected Light, from enlightened objects' surfaces of environment having Incident, on its Lens. [1-4] This project centers around identification of human. The intelligence of this will be used for tracking Criminals who after committing crime tries to escape and even catching terrorist. [2]

Through visioning system's precision, accuracy, resolving powers the Environment can be perceived. There are several cases such as follows:

In Rail-way Stations: There are lots of random events going on at the station floor all day and night, in every second. Challenge is to identify those of the non-criminal-events from criminal-events. [4] In Air-Ports: Suspicious movements or existence of hijackers; specially with some camera system look for known face-matching. [5-8]

IV. SOME RESULT

A. Face Space Creation

Face space is the shortening of dimension of the matrices of the images to be identified. The image to be identified has its own face space and we compare the face spaces values for matching.

facespace 1 = A

-0.2415 -0.2106 -0.2665 0.5389 0.0657
-0.1818 0.6874 -0.1104 -0.3414 0.2549
-0.1872 0.3625 0.3633 -0.0433 -0.4269
-0.9101 0.2918 -0.8107 0.7670 0.8122
-0.2128 -0.5163 0.3572 -0.0545 0.2980

facespace 2 = B

0.5871 0.3593 -0.6571 0.0345 -0.4598
0.2750 -0.4320 0.1986 0.0261 -0.3625
0.7483 0.6386 -0.6583 -0.8395 0.7137
0.0102 -0.4505 -0.1716 0.3853 0.1427
0.1402 0.2712 0.2567 -0.3806 -0.3570

facespace 3 = C

0.6802 -0.0075 -0.0443 -0.4344 -0.6556
0.1063 -0.5306 0.4791 -0.1506 -0.3712
0.1562 -0.0464 -0.0063 -0.6183 0.3807
0.4429 0.6616 -0.6826 0.3649 -0.5312
0.5528 -0.5278 -0.5500 0.5227 0.0728

B. Face Space Mapping

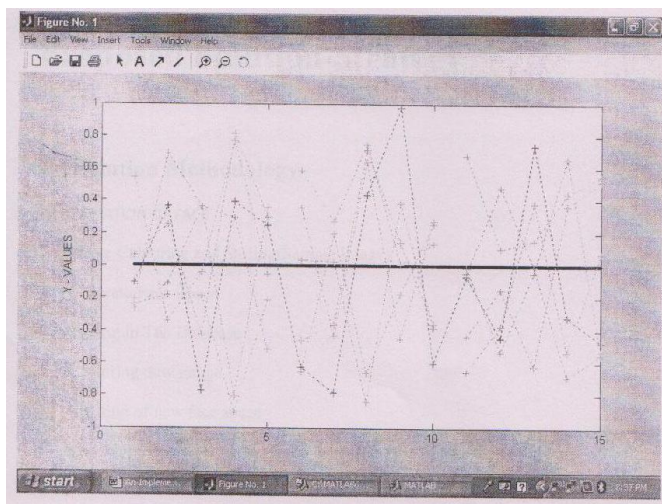


Fig. 1 Face Space Mapping

green => (A || B || C)-Facespace

red => image-1 testfacespace distance through the Facespace span

V. PROPOSED DEVICE

We are presenting a watch which can handle many properties. We are allow to maintain this watch and adding 4 micro camera in this watch in both sides. Though this watch have 4 micro camera and a front camera also so it can capture the whole thing in front of you. This watch can have a micro-chip slot and it can be supported upto 32 gb expandable memory chip, which can store the video clippings arounds you.

In the above figures in "Fig 2" at first we are added 4 micro cameras in this particular watch. Then in "Fig 3" we added a micro sd chip in our watch from corresponding to the chip slot and "Fig 4" we are indicating in which side problem

is occur with a red light arrow .In "Fig 5" we are also added a front camera. And at last the final figure is created in "Fig 6".

A. Take a watch position 1,2,3,4 we set camera.



Fig. 2

B. The camera take photo on a object



Fig. 3

Here we intro duce some arrow



Fig. 4

C. The arrow are indicate where the problem are found and inform you by a bujjer



Fig. 5

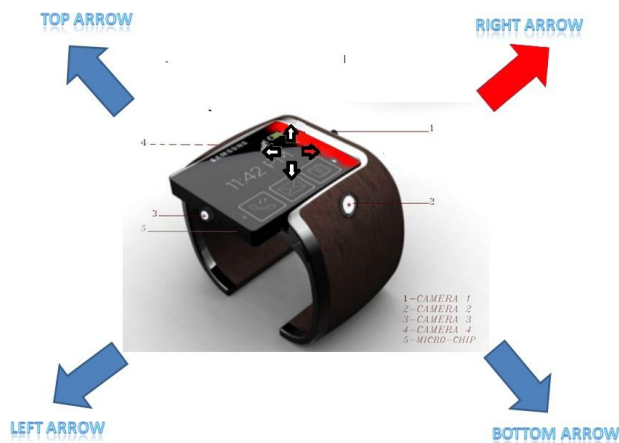


Fig. 6

VI. CAUSE OF TO PRODUCE THIS CAMERA

In this world and also surroundings you many types or many character people are present. Every person are not good and as well as not bad. By those people, some people works to physically or maintally harassment to the other people like ifteaching, rape etc. This is too bad condition in our places. Try to stop and advanced alert this type of condition we are creating this types of watches. The circuit diagram of this watch have a emotion detection facilities with the use of the micro cameras. Actually this watch is try to protect and advanced alert us to do something as in front of our danger zone. Previously we are saying that this watch have many properties, first of all this watch has micro camera, which can capture the clippings in front of your situations and what is thinking the other peoples. This watch also have a emotion detection device in back of the watch which is sensitively attach with the micro camera.

Suppose you are going to office in metro-rail. Many people have present in the metro station. One of us in front of you has bad thinking or he is trying to theve your wallet or slang comments and bad mentality for the girls. In this situation the watch in your hand through working, record the clippings and red signal occur in your watch with particular direction where these peoples are present. At this time you have to alert and deside carefully what to do.

VII. COST ESTIMATION

Cost of the watch : 2999/- only

Cost of the 5 cameras : 1300/- only

Cost of the micro SD chip : 800/- only

Cost of the 15.5V battery : 899/- only

REFERENCES

- [1] B. Reeves and C. Nass, The Media Equation: How People Treat Computers, Television and New Media Like Real People and Places, Cambridge Univ. Press, 1996.
- [2] R. W. Picard, Affective Computing, MIT Press, Cambridge, MA, 1997.
- [3] P. Ekman, "Strong evidence for universals in facial expressions: A reply to Russell's mistaken critique," Psychological Bulletin 115(2), pp. 268–287, 1994.
- [4] P. Ekman and W. Friesen, Facial Action Coding System: Investigator's Guide, Consulting Psychologists Press, 1978.
- [5] K. Mase, "Recognition of facial expression from optical flow," IEICE Trans. E74(10), pp. 3474–3483, 1991.
- [6] N. Ueki, S. Morishima, H. Yamada, and H. Harashima, "Expression analysis/synthesis system based on emotion space constructed by multilayered neural network," Systems and Computers in Japan 25(13), pp. 95–103, 1994.
- [7] A. Lanitis, C. Taylor, and T. Cootes, "A unified approach to coding and interpreting face images," in Proc. International Conf. on Computer Vision, pp. 368–373, 1995.
- [8] M. Black and Y. Yacoob, "Tracking and recognizing rigid and non-rigid facial motions using local parametric models of image motion," in Proc. International Conf. on Computer Vision, pp. 374–381, 1995. M. Rosenblum, Y. Yacoob, and L. Davis, "Human expression recognition from motion using a radial basis function network architecture," IEEE Trans. on Neural Network 7(5), pp. 1121–1138, 1996.
- [9] I. Essa and A. Pentland, "Coding, analysis, interpretation, and recognition of facial expressions," IEEE Trans. on Pattern Analysis and Machine Intelligence 19(7), pp. 757–763, 1997.
- [10] T. Otsuka and J. Ohya, "Recognizing multiple persons' facial expressions using HMM based on automatic extraction of significant frames from image sequences," in Proc. International Conf. on Image Processing, pp. 546–549, 1997.
- [11] I. Cohen, N. Sebe, A. Garg, L. Chen, and T. Huang, "Facial expression recognition from video sequences: Temporal and static modeling," Computer Vision and Image Understanding 91(1-2), pp. 160–187, 2003.
- [12] L. Chen, Joint processing of audio-visual information for the recognition of emotional expressions in humancomputer interaction. PhD thesis, University of Illinois at Urbana-Champaign, 2000.
- [13] I. Cohen, N. Sebe, F. Cozman, M. Cirelo, and T. Huang, "Semi-supervised learning of classifiers: Theory, algorithms, and applications to human-computer interaction," IEEE Trans. on Pattern Analysis and Machine Intelligence, to appear, 2004.
- [14] https://www.google.co.in/search?q=spatial&source=lnms&tbm=isch&s a=X&ei=GtyBVJXTF46luQSTgYHQBW&ved=0CAgQ_AUoAQ#tbm=isch&q=spectacle+
- [15] https://www.google.co.in/search?q=spatial&source=lnms&tbm=isch&s a=X&ei=GtyBVJXTF46luQSTgYHQBW&ved=0CAgQ_AUoAQ#tbm=isch&q=lens
- [16] https://www.google.co.in/search?q=spatial&source=lnms&tbm=isch&s a=X&ei=GtyBVJXTF46luQSTgYHQBW&ved=0CAgQ_AUoAQ#tbm=isch&q=headphones