IEEE PROJECTS IN MATLAB : 2014 – 2015

MAT 7001: A HYBRID TECHNIQUE FOR LICENCE PLATE RECOGNITION BASED ON FEATURE SELECTION OF WAVELET TRANSFORM

ARCHITECTURE DIAGRAM

DESCRIPTION: **Existing Method:** VEDA (Vertical Edge Detection Algorithm) method is used which gives very low accuracy. The processing time taken by VEDA method is high. **Proposed Method:** ANN(Artificial Neural Network) is implemented along with wavelet transform which gives more accuracy. In ANN a special function called Radial Basis Function is used which reduces the complexity of detection and recognition of license plate. **Modification:** License Plate Recognition is carried out only for White Background with Black Letters. But we can modify and enhance this concept for Yellow and Red Background license plate. In that tollgate recognised particular state license plate charged minimum cost, others differentiate. Payment accessed by swipe cards

ALGORITHM : Wavelet Transform

DOMAIN: MATLAB, Embedded

IEEE REFERENCE : IEEE PAPER on ICROIT 2014.

77/2,HABIBULLAH ROAD, T. NAGAR, CH – 17. PH : 2834 2821 / 2822 / 2823

MAT 7002: DETECTION OF HUMAN PRESENCE IN A SURVEILLANCE VIDEO

ARCHITECTURE DIAGRAM

DESCRIPTION: **Existing Method:** Neural network is processed to identify and recognize presence of human. By this neural network concept the processing time is more because of the large dataset. **Proposed Method:** Fuzzy method is implemented which can be used to identify the skin area portion in a image thus making us easy to process for further steps. **Modification:** Human presence in a video is only implemented and along with that process Human can also be tracked for each and every frame in a video with the help of label and rectangular region. Authentication is monitored by the device. If authentication is failure then human tracked.

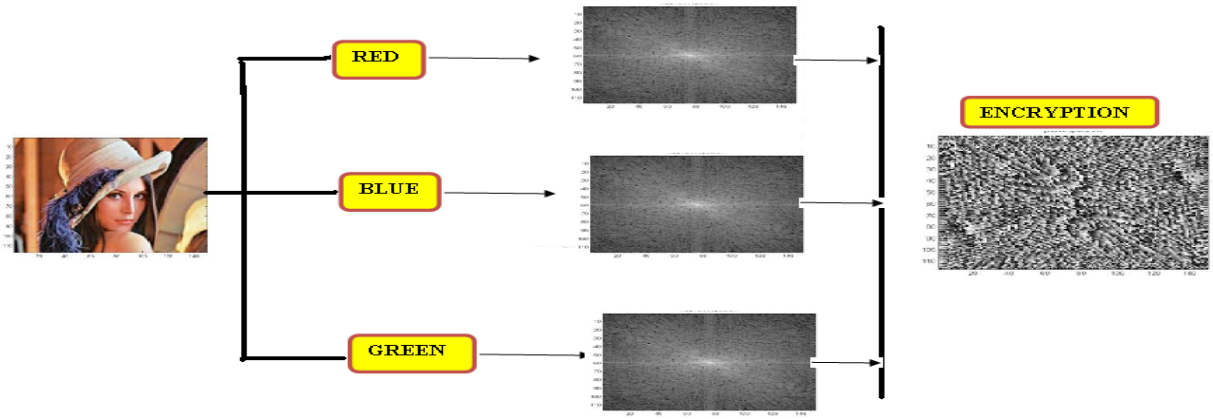
ALGORITHM: **FUZZY.**

DOMAIN: MATLAB, Embedded

IEEE REFERENCE : IEEE PAPER on Signal Processing and Integrated Networks, 2014

MAT 7003: DIGITAL IMAGE BIOMETRIC FACIAL IMAGE ENCRYPTION USING CELLULAR AUTOMATA FOR SECURED IMAGE STORAGES

ARCHITECTURE DIAGRAM



DESCRIPTION: **Existing Method:** Image Encryption is processed using the method like pixel value substitution which focuses on the change in pixel values so that original pixel information cannot be read, and the pixel location scrambling which focuses on the change in pixel position. **Proposed Method :** Cellular automata (CA) method is implemented for secure image storage and this system is made ease for encryption through the use of segmentation of CA binary image with embedded secret keys. **Modification:** Key can be added in a image with the help of keypads which is available in the market and can be interfaced with real time hardware such as controllers to send the key data to PC/ Laptop.

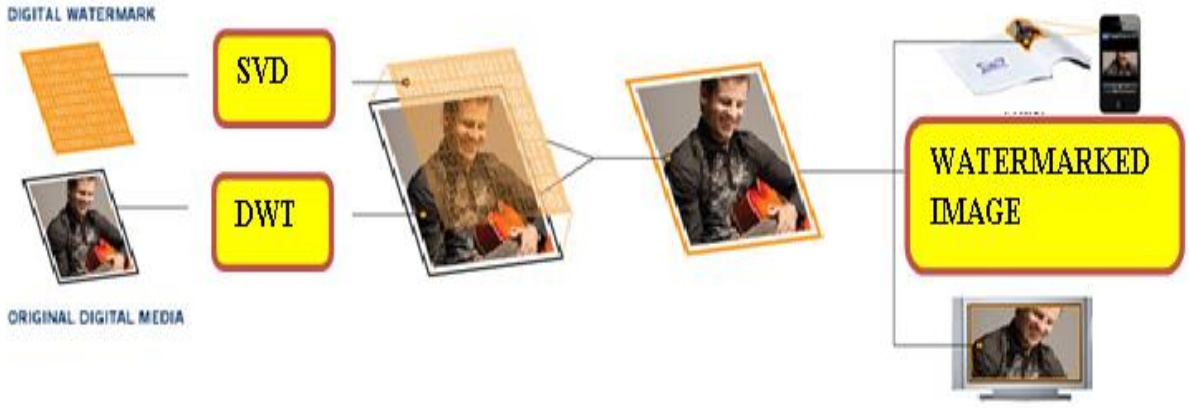
ALGORITHM: CELLULAR AUTOMATA.

DOMAIN: MATLAB

IEEE REFERENCE : IEEE PAPER on JICTEE, 2014

MAT 7004: EFFICIENT HYBRID WATER MARKING APPROACH BY USING SVD,DWT AND BACK PROPAGATION NEURAL NETWORK

ARCHITECTURE DIAGRAM



DESCRIPTION: **Existing Method:** Watermarking is processed through steps like digital cryptograph with various attacks such as rotation, cropping. **Proposed Method:** Back propagation neural network method is implemented which produces more accurate and compressed image. **Modification:** Image watermarking can be implemented with more than one watermarking image for better security.

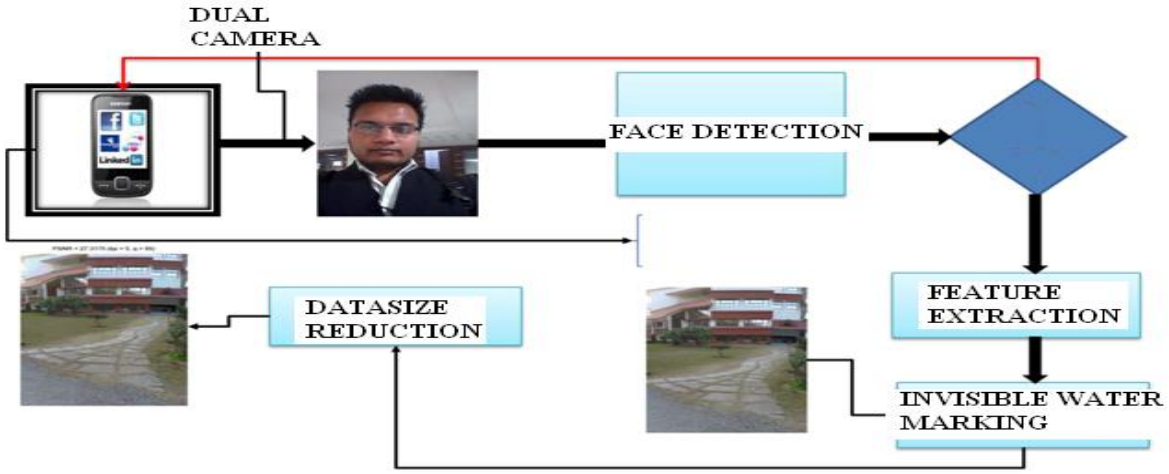
ALGORITHM: Propagation Neural Network

DOMAIN: MATLAB.

IEEE REFERENCE : IEEE PAPER on IACC,2014

MAT 7005: IMAGING TECHNIQUES FOR SECURE PHOTOGRAPHY USING DUAL CAMERA

ARCHITECTURE DIAGRAM



DESCRIPTION: **Existing Method:** Direct correlation method, eigenface method and fisher-face method is used for face detection. Pre-processing techniques should be applied prior to training and testing each method. **Proposed Method:** Invisible watermarking is implemented for secure photography. **Modification:** Robust watermark and high image quality is provided with embedding more than one image for watermarking.

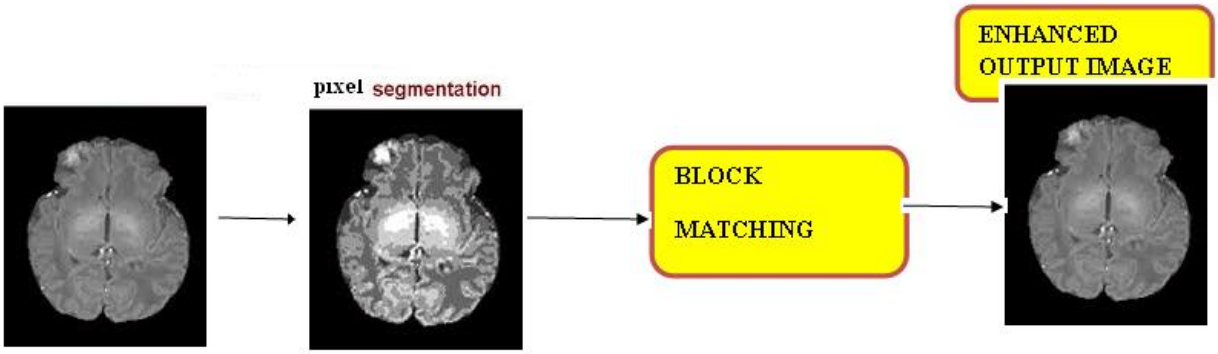
ALGORITHM: INVISIBLE WATER MARKING

DOMAIN: MATLAB

IEEE REFERENCE : IEEE PAPER on RAECS ,2014

MAT 7006: MEDICAL IMAGE ENHANCEMENT USING ADAPTIVE MULTISCALE PRODUCT THRESHOLDING

ARCHITECTURE DIAGRAM



DESCRIPTION: **Existing Method:** Threshold is straightly applied to the wavelet coefficients and canny edge detector is applied for image denoising. **Proposed Method:** Proposed method multiplies the neighboring wavelet sub-bands and then apply threshold to multiscale products for improved edge differentiation. Canny edge detector's performance is enhanced by scale multiplication. **Modification:** Different types of noises are added manually and their corresponding denoising factors are analyzed and their graphs are plotted.

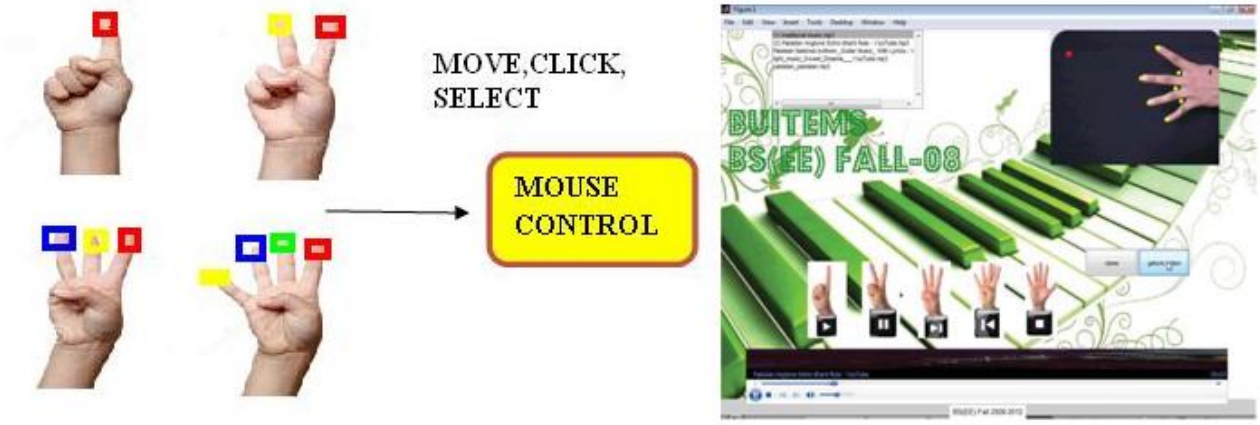
ALGORITHM: GENETIC ALGORITHM.

DOMAIN: MATLAB

IEEE REFERENCE : IEEE PAPER on ICICT,2014

MAT 7007: REAL TIME GESTURE RECOGNITION FOR COMPUTER INTERACTION

ARCHITECTURE DIAGRAM



DESCRIPTION: **Existing Method:** Adaptive color segmentation, hand finding and labeling with blocking, morphological filtering and then gesture actions are found by template matching. **Proposed Method:** Blob Detection method is carried out for gesture recognition using video signals. **Modification:** Along with Blob detection, hand tip color gesture identification process is also carried out with different colors.

ALGORITHM: GESTURE RECOGNITION.

DOMAIN: MATLAB.

IEEE REFERENCE : **IEEE PAPER** on Electrical, Electronics and Computer Science, 2014.

MAT 7008: REAL-TIME GESTURE RECOGNITION & ROBOT CONTROL THROUGH BLOB TRACKING

ARCHITECTURE DIAGRAM:

DESCRIPTION: The main aim of the Project is to control the Robot through Gesture Recognition. We Deploy Matlab based application for capturing, Processing & Recognition part of Gesture of the User. **Existing Method:** Color segmentation and SIFT algorithm is used for gesture recognition in which the processing steps are very complex and time consuming. **Proposed Method:** Finger tip gesture recognition is carried out for better output and accuracy. **Modification:** An application is developed to recognize the gesture and to operate it accordingly such as moving robot, operating music player etc..Web Camera captures the Gesture via Matlab application & passes the action to the embedded hardware for Robot control via RF Communication.

ALGORITHM: GESTURE RECOGNITION

DOMAIN: MATLAB, Embedded

IEEE REFERENCE: IEEE Paper on SCEECS**, 2014**

MAT 7009: AUTOMATIC LICENSE PLATE RECOGNITION USING MATLAB

ARCHITECTURE DIAGRAM:

DESCRIPTION: In the area of Traffic management and digital image processing license plate recognition is the main issue. To solve this issue automatic license plate recognition based on MATLAB is proposed. This method involves pre-process, edge extraction, automatic license location, character division and character recognition.

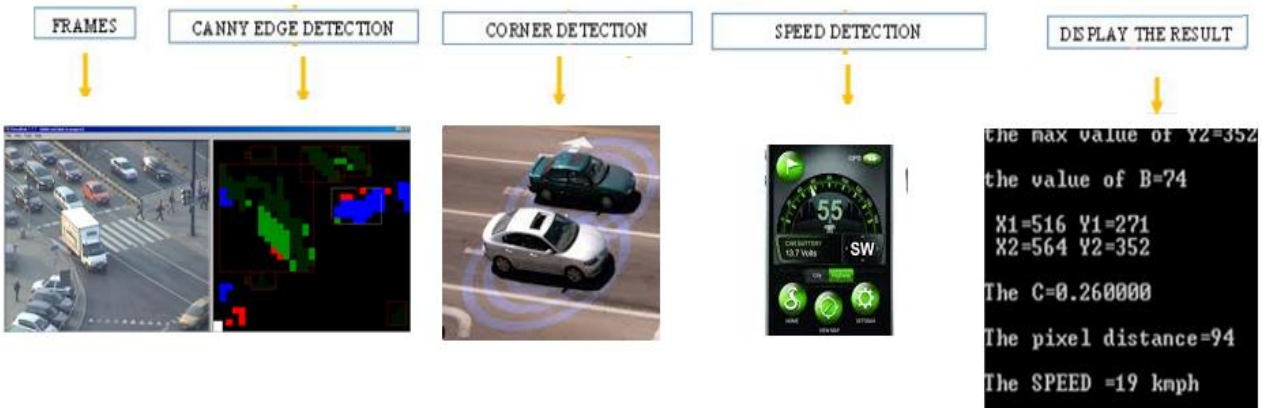
ALGORITHM: SIFT

DOMAIN: MATLAB

IEEE REFERENCE: IEEE Paper on ICROIT, 2014

MAT 7010: VECHICLE SPEED DETECTION IN VIDEO FRAMES USING CORNER DETECTION

ARCHITECTURE DIAGRAM:



DESCRIPTION:. **Existing Method:** Existing method using image and video processing involves Vehicle detection based on frame difference, calibrated camera, motion trajectories, optics and digital aerial images. **Proposed Method:** In this work frame subtraction and masking techniques are employed for speed detection. **Modification:** Vehicle can be counted in a particular track/ zone for traffic management system

DOMAIN: MATLAB

IEEE REFERENCE: IEEE Paper on ICSIP, 2014

MAT 7011: SOFT BIOMETRICS AND THEIR APPLICATION IN PERSON RECOGNITION AT A DISTANCE

ARCHITECTURE DIAGRAM:

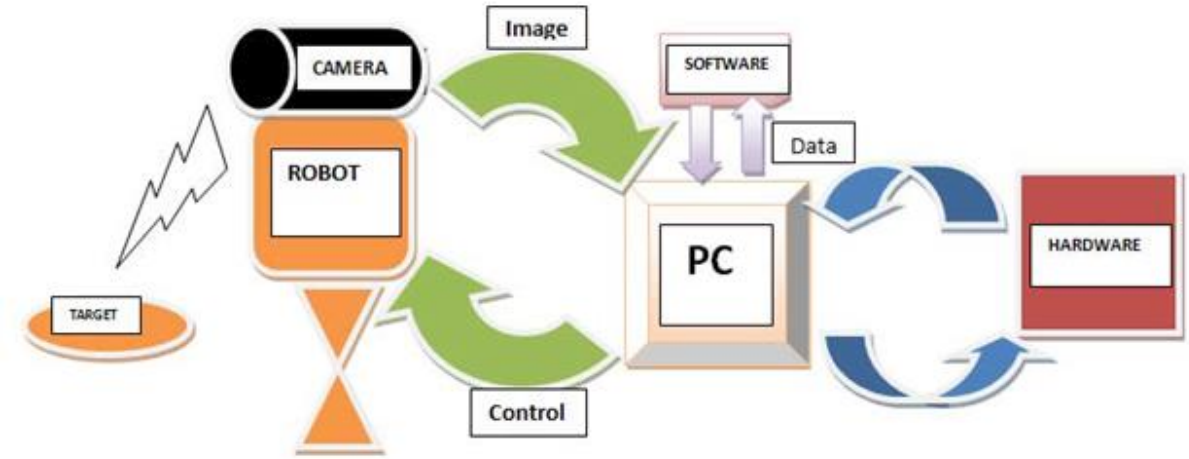
DESCRIPTION: **Existing Method:** Artificial neural network algorithm is used to track face and identify it. This process will consume time because of large training datasets. **Proposed Method:** The present work involves the application of an extensive set of labels that can be visually described by humans at a distance and they are quantifiable in a discrete way. The soft labels considered here are based on head, global and body anthropometric measures. **Modification:** An application is developed to monitor the face and eyes for drowsy detection in order to avoid accidents while driving

DOMAIN: MATLAB

IEEE REFERENCE : IEEE TRANSACTIONS on information forensics and security,2014.

MAT 7012: VISION BASED ROBOTIC SYSTEM FOR MILITARY APPLICATIONS DESIGN AND REAL TIME VALIDATION

ARCHITECTURE DIAGRAM:



DESCRIPTION: **Existing Method:** Color segmentation along with blob detection is used for object tracking or identification. **Proposed Method:** Sum of absolute difference algorithm is used for the implementation of image processing algorithm. It works on the principle of image subtraction. **Modification:** Human existence can be found out using vision tool in image processing which can be useful to detect humans .

DOMAIN: MATLAB, EMBEDDED

IEEE REFERENCE : IEEE PAPER on SPIN,2014

MAT 7013: VIDEO BASED DETECTION AND ANALYSIS OF DRIVER

ARCHITECTURE DIAGRAM:

DESCRIPTION: **Existing Method:** Audio, laser, radar and GPS sensors are used for detection and analysis of driver performance. **Proposed Method:** Image processing technique such as Human vision system is implemented for detection and analysis along with external sensors. **Modification:** Instead of SVM classifier, Neural network algorithm is used for quick and accurate response for face identification.

DOMAIN: MATLAB

IEEE REFERENCE : IEEE PAPER on SPIN, 2014

MAT 7014: A GESTURE LEARNING INTERFACE FOR SIMULATED ROBOT PATH SHAPING WITH A HUMAN TEACHER

ARCHITECTURE DIAGRAM:

DESCRIPTION: The main Objective of the Project is to control the Robot through Human gesture Recognition. Matlab Software is used for User Gesture Recognition via Web camera. Data is collected to Extract the Feature of Gestures from the User. Clustering is achieved for Gesture Recognition. Once the Gesture is recognized corresponding Data is communicated with the Robot via RF Communication. Modification Part of the Project is build a 3 Axis Robot where by Robot action are controlled using Gesture Recognition. Controls are Left, Right, Forward, Backward, Rotate Clockwise, Rotate Anti Clockwise, Arm Up, Arm Down, Grabber open & Grabber Close.

DOMAIN: **MATLAB , Image Processing, Embedded**

IEEE REFERENCE: **IEEE TRANSACTIONS on** Human - Machine Systems, **2014**

MAT 7015: VISION BASED COMPOSITE APPROACH FOR LETHARGY DETECTION

ARCHITECTURE DIAGRAM:

DESCTIPTION: The Objective of the Project is to avoid Accidents by Detecting Driver Drowsiness and Yarning through Matlab via Image Processing. Web Camera is Placed in the Vehicle in Real-time but as per our Implementation, Web Camera is connected to the PC used to detect the Driver's Eye & Mouth Status for Drowsiness & Yarning. As per the Procedure Image is Captured then Face is Detected. Facial Features are extracted toward Eye & Mouth. Eye Winking & Yarning is Detected and used for controlling the Vehicle via RF Communication. In the Modification of the Project, Alcohol Sensor & RFID based Zone Safety System is also is also interfaced to Embedded Hardware for controlling the Vehicle.

DOMAIN: MATLAB, Embedded

IEEE REFERENCE: IEEE PAPER on CSPA, **2014**

MAT 7016: HUMAN-COMPUTER INTERFACE CONTROLLED BY THE LIP MOVEMENT

ARCHITECTURE DIAGRAM:

DESCRIPTION: The Main Objective of the Project is to Track the Movements of Lips or effective Mouse Pattern Control. As an Extra part of **MODIFICATION** of the implementation, so also use Head Movements. Both Head & Lip movements are Captured, Stored & Compared with the Predefined Training Set which is stored in the System. Input images are captured using Web Camera and compared with the Training Set. Based on the Result System's Mouse is controlled. the Directions are Right, Left, Up, Down, Single Click or Selection, Double Click.

DOMAIN: MATLAB

IEEE REFERENCE: IEEE PAPER on Biomedical and Health Informatics, 2014

MAT 7017: TRAFFIC SIGN RECOGNITION FOR AUTONOMOUS DRIVING ROBOT

ARCHITECTURE DIAGRAM:

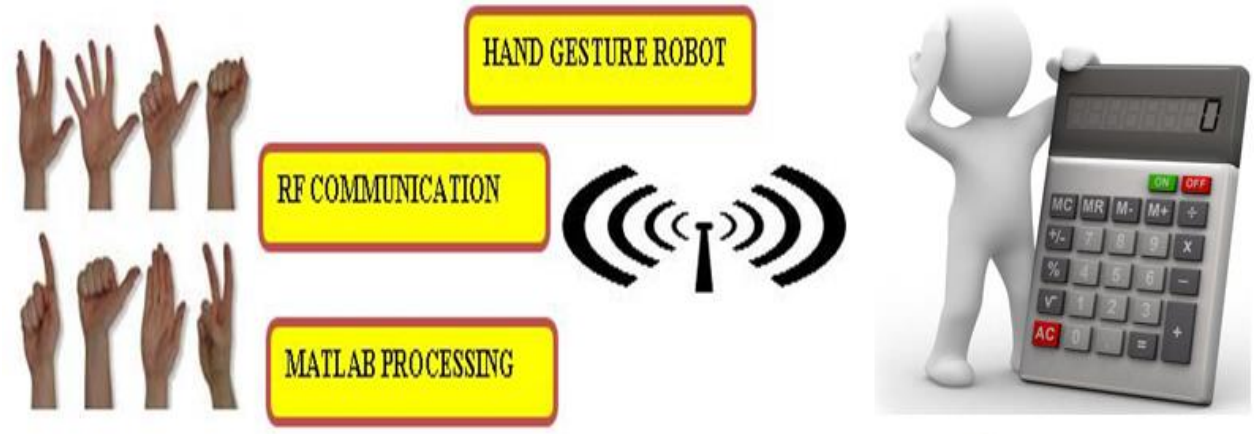
DESCRIPTION: The Main Objective of the Project is to Recognize Traffic Signal and Autonomous Navigation of Robot. Images that are shown on front of the Camera that are Recognized and compared with the Previous Stored Patterns & finally Corresponding Signals are Transferred to Control the Robot via RF Communication. We Connect a Web Camera with a Computer for Capturing, Processing and Transmitting Corresponding Signals. RF Transmitter connected to PC will Transmit the Control Signals to RF Receiver which is connected to Robot. Robot is controlled as per the Traffic Signs shown. In the Modification part of this Project, Destination of the Robot is given in the PC, so that the Robot is Navigated automatically to the Expected Destination through IR Communication. Robot will IR Receiver Unit and in the Road Side IR Transmitters are Deployed. Based on the IR Transmitter ID Robot reaches the Specified Destination.

DOMAIN: Image Processing, Embedded, Matlab

IEEE REFERENCE: IEEE PAPER on ICARSC, 2014

MAT 7018: MATHEMATICAL CALCULATION USING HAND GESTURE RECOGNITION

ARCHITECTURE DIAGRAM:



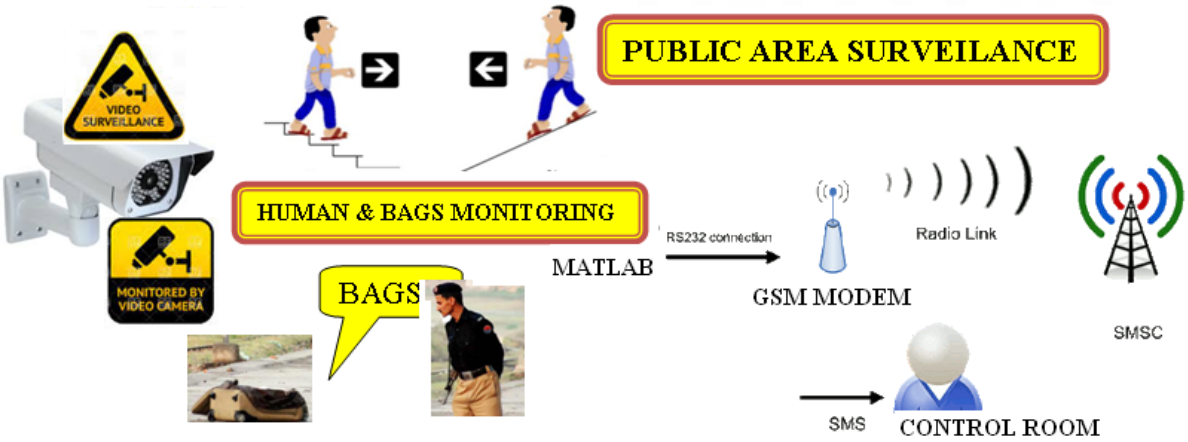
DESCRIPTION: **Existing Method:** Color segmentation and SIFT algorithm is used for gesture recognition in which the processing steps are very complex and time consuming. **Proposed Method:** Finger tip gesture recognition is carried out for better output and accuracy. **Modification:** we perform mathematical calculation for each separate finger movement.

DOMAIN : MATLAB.

IEEE REFERENCE : IEEE PAPER on Computer Science and Software Engineering, 2014.

MAT 7019: MATLAB BASED HUMAN MONITORING AND IMAGE TRACKING WITH SMS ALERT

ARCHITECTURE DIAGRAM



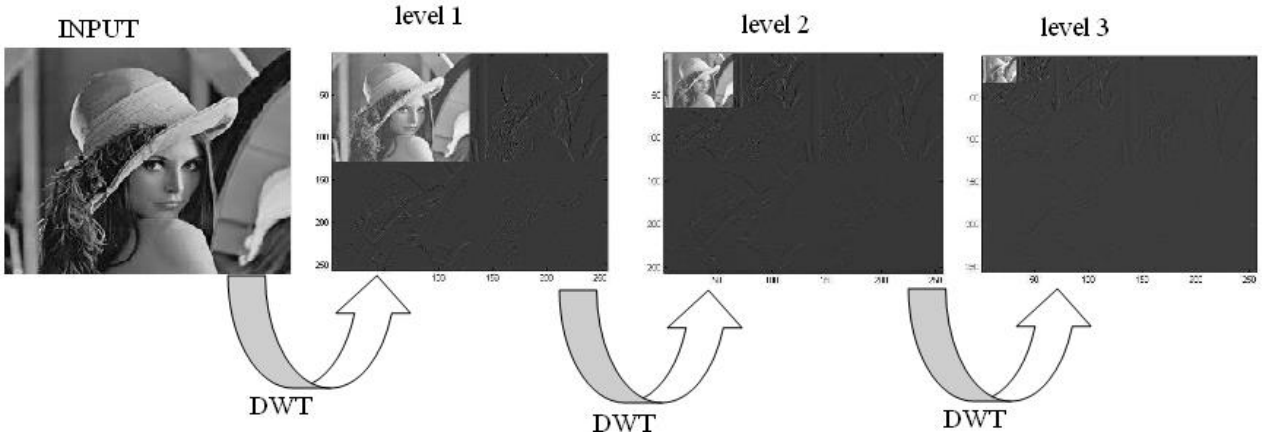
DESCRIPTION :. In **PROPOSED SYSTEM,** Home Security is implemented. If any interrupt occurs, immediately it is detected and controller communicates to the Phone via SMS. In the **MODIFICATION** phase of the project is our Implementation. Webcam is connected to a System and which Tracks the Human Movements in a Public Moving Areas. Our System will Track an Object as well as a Person Staying for a Long Time. If Either of these Two are Staying for a Quiet a Long Time then automatically Our System sends a Request to the GSM to send a SMS Alert for the corresponding Authorities. So that We can Scan any Illegal Activities or Bomb Threat in those Areas.

DOMAIN : Matlab, Image Processing, Security, Society Based

IEEE REFERENCE: IEEE Paper on ICICT, 2014

MAT 7020: ANALYSIS OF IMAGE COMPRESSION ALGORITHM USING DCT AND DWT TRANSFORMS

ARCHITECTURE DIAGRAM:



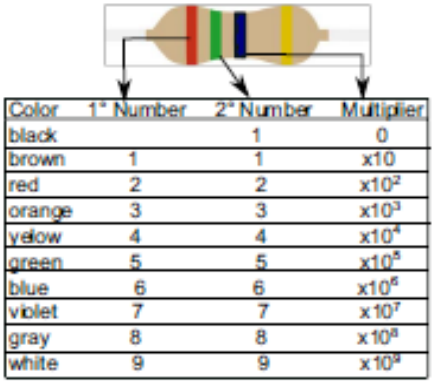
DESCRIPTION: The **PROPOSED DESIGN** is a flexible hardware architecture of multi-level decomposition Discrete Wavelet Transform (DWT) for image compression applications to eliminate redundant information from the transmitted images or video frames over the wireless channel. It facilitates to images of size 64×64, 128×128, 256×256, and 512× 512 pixels and capable of seven levels of decomposition**.** In the **MODIFICATION** we perform process to improve **PSNR** ratio**.**

DOMAIN : MATLAB,VLSI.

IEEE REFERENCE : IEEE PAPER on Computer Science and Software Engineering,2014.

MAT 7021: HYBRID CLASSIFICATION OF RESISTORS THROUGH IMAGE PROCESSING

ARCHITECTURE DIAGRAM:



Color	1st Number	2nd Number	Multiplier
black		1	0
brown	1	1	x10
red	2	2	$x10^2$
orange	3	3	$x10^3$
yellow	4	4	$x10^4$
green	5	5	$x10^5$
blue	6	6	$x10^6$
violet	7	7	$x10^7$
gray	8	8	$x10^8$
white	9	9	$x10^9$

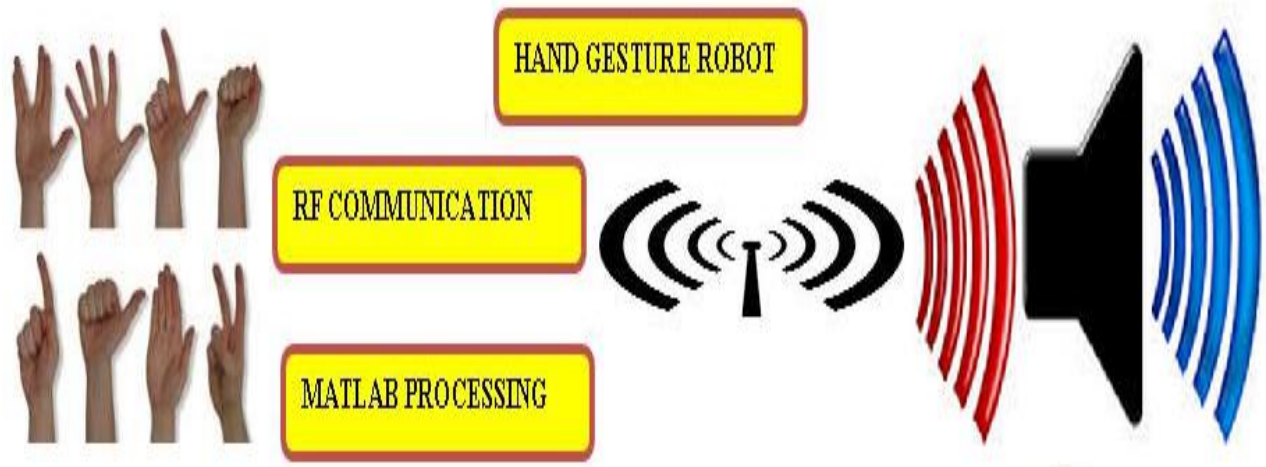
DESCRIPTION: **Existing method:** Color band segmentation is proceeded with binarization which is more complex when band increases. **Proposed Method:** k-mean clustering is used along with binarization for improvisation. **Process:** Resistor frame is given as input to matlab software which is then processed with the algorithms to segment and evaluate the resistor band values. **Modification:** Along with resistor band identification, inductor values can also be implemented.

DOMAIN : MATLAB.

IEEE REFERENCE : IEEE PAPER on Paper on Parallel, Distributed, and Network-Based Processing, 2014.

MAT 7022: HAND GESTURE RECOGNITION USING AN MATLAB

ARCHITECTURE DIAGRAM:



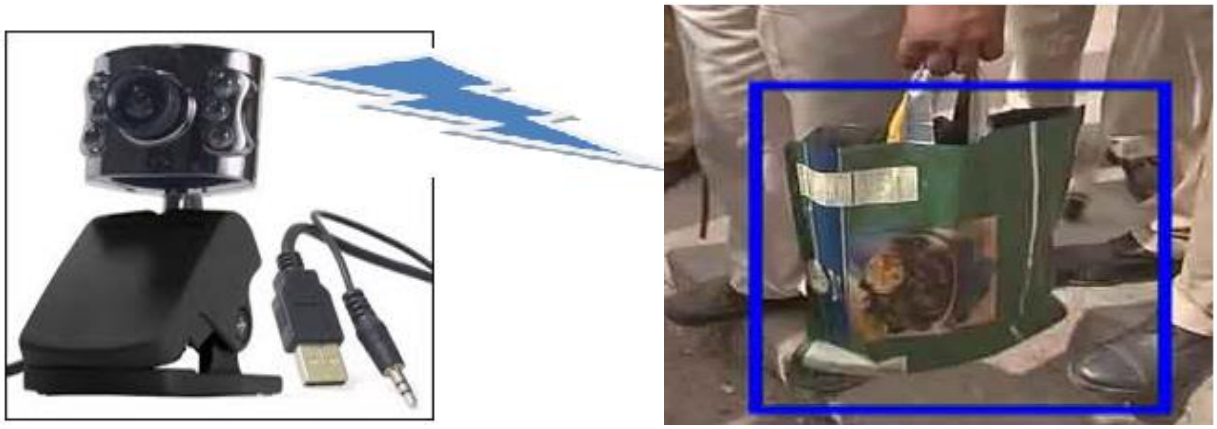
DESCRIPTION: **Existing Method:** Color segmentation and SIFT algorithm is used for gesture recognition in which the processing steps are very complex and time consuming. **Proposed Method:** Finger tip gesture recognition is carried out for better output and accuracy. **Modification:** we play 5 different voices for each separate finger movement.

DOMAIN : MATLAB.

IEEE REFERENCE : IEEE PAPER on Computer Science and Software Engineering, 2014.

MAT 7023: IMAGE DIFFERENCE ALGORITHM FOR PROTECTING VIOLENT ACTIVITIES OF TERRORIST

ARCHITECTURE DIAGRAM:



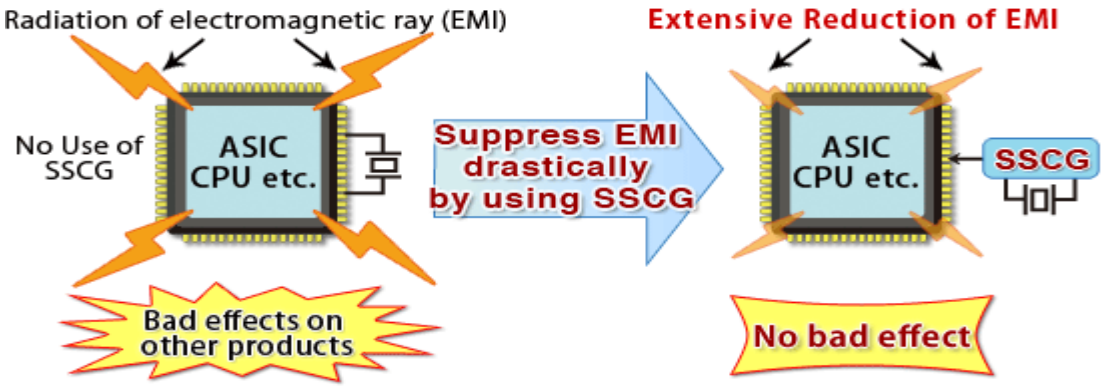
DESCRIPTION: The Main aim of the Project is to protect bomb blast that is perpetrated for a religious, political, or ideological goal. Images that are shown on front of the Camera that are Recognized and compared with the Previous frames. Using **image difference algorithm** we can able to detect unwanted substance in the public area. We Connect a Web Camera with a Computer for Capturing, Processing and Transmitting Corresponding Signals.

DOMAIN : MATLAB.

IEEE REFERENCE : IEEE PAPER on Computer Science and Software Engineering, 2014.

MAT 7024 : A LOW-COST LOW-POWER ALL-DIGITAL SPREAD-SPECTRUM CLOCK GENERATOR

ARCHITECTURE DIAGRAM:



DESCRIPTION: Electromagnetic interference (EMI) is a major challenge for designers of electronic devices. Strict guidelines enforced by the FCC and European Union regulate the amount of EMI a system can generate. Frequency references, whether crystal oscillators or silicon-based PLLs, can be a major source of EMI on circuit boards. Spread spectrum clocking is a technique where the clock frequency is modulated slightly to lower the peak energy generated by a clock. Spread spectrum clocking lowers clock-generated EMI from both the fundamental frequency and subsequent harmonics, thereby reducing the total system EMI.

DOMAIN : SIMULINK.

IEEE REFERENCE : IEEE TRANSACTIONS ON VERY LARGE SCALE INTEGRATION (VLSI) SYSTEMS, 2014.

MAT 7025. A NOVEL ALGORITHM FOR OPTICAL CHARACTER

ABSTRACT

Computer vision, artificial intelligence and pattern recognition have been important areas of research for a while in the history of electronics and image processing. Optical character recognition (OCR) is one of the main aspects of computer vision and has evolved greatly since its inception. OCR is a method in which readable characters are recognized from optical data obtained digitally. Many methodologies and algorithms have been developed for this purpose using different approaches. Here we present one such approach for OCR named " i ". Amongst all other OCR systems available, " i " aims at a high speed, simple, font independent based on a unique segment extraction technique. This algorithm can be used as a kernel for single alphabet detection within a complete OCR solution system.

IEEE REFERENCE: IEEE Paper on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s) **, 2013**

MAT 7026. ACCESS CONTROL SYSTEM USING PALM

ABSTRACT

In this project, the design of a biometric system for the palm of the hand, oriented to offer a people access control, without the typical drawbacks of this system, like the no carrying of the budge, erase of the id barcode, unreadable fingerprints, dirty or soiled hands is proposed. The system uses a device with a guide to position the palm of the hand and a constant lighting system. With a camera is acquired the hands' image and is processed with MATLAB to get measurements like skin color, width and hand length.

IEEE REFERENCE: IEEE Paper on Image, Signal Processing, and Artificial Vision (STSIVA)**, 2013**

MAT 7027. AUTOMATIC LICENSE PLATE RECOGNITION USING MATLAB

ABSTRACT

In the area of Traffic management and digital image processing license plate recognition is the main issue. To solve this issue automatic license plate recognition based on MATLAB is proposed. This method involves pre-process, edge extraction, automatic license location, character division and character recognition.

IEEE REFERENCE: IEEE Paperon Measuring Technology and Mechatronics Automation**, 2013**

MAT 7028. AUTOMATIC PARKING LOT MAPPING FOR AVAILABLE PARKING SPACE DETECTION

ABSTRACT

Automatic system of available parking space detection is proposed to estimate map of parking lot. The parking space detection is important module for the parking guidance system that can help drivers to find the parking space efficiently. Automatic threshold for tuning object (car) detection is also implemented. The fine tuning technique can improve accuracy for the parking lot mapping.

IEEE REFERENCE: IEEE TRANSACTIONS on Computers**, 2013**

MAT 7029. COST EFFECTIVE SMART REMOTE CONTROLLER BASED ON INVISIBLE IRLED

ABSTRACT

We present a new cost effective smart remote controller using only a camera which may be installed or attached on digital appliances and infrared (IR) LED to control various electronic appliances, such as digital smart TV, air conditioner and so on. The users can easily operate the invisible IR LED to make the specific command by simply blinking the IR LED. Then, the proposed system can easily analyze the state of IR LED and understand the human intention by image processing using a built-in embedded processor within the digital appliances. Therefore, the proposed system can directly understand and generate specific command signal to control the digital appliances without any communication circuit between remote controller and digital devices unlike the previous remote controllers.

IEEE REFERENCE: IEEE Paper on ICCE**, 2013**

MAT 7030. DESIGN AND IMPLEMENTATION OF REAL TIME EMBEDDED TELE-HEALTH MONITORING SYSTEM

ABSTRACT

Now a day's healthcare industry is to provide better healthcare to people anytime and anywhere in the world in a more economic and patient friendly manner. In the present paper the physiological parameters such as Pulse rate and Temperature are obtained, processed using ARM7 LPC 2138 processor and displayed in a MATLAB. If any vital parameter goes out of normal range then alert SMS will be sent to Doctor Mobile. This system is utilizing low cost component to transmit data to physicians for monitoring, diagnosis and patients care at a significantly low cost, regardless of patient's location.

IEEE REFERENCE: IEEE Paper on ICCPCT**, 2013**

MAT 7031. ESTABLISHING A COST EFFECTIVE EMBEDDED CONTROL

ABSTRACT

The cost of establishing a traditional control systems and robotics program usually runs into many thousands of dollars. As a result many undergraduate and graduate institutions are unable to establish these important programs in their curriculum. This paper introduces an alternative method of teaching important control system and robotics concepts using ROBOTC and MATLAB software. In this paper we discuss the control design of a two wheeled mobile robot. The establishment for embedded control system of two wheeled robot is designed based on a MATLAB environment. Implementation of the software is completed using ROBOTC.

IEEE REFERENCE: IEEE Paper on ISEC**, 2013**

MAT 7032. GRAPHICAL PASSWORD PASS-IMAGES EDGE DETECTION

ABSTRACT

In this paper a new algorithm (Edge pass) is proposed to extract the edges of pass-images for a graphical password system. The system framework is based on edge detection, image fusion and high spatial frequency component extraction. This method can be widely used in many authentication systems since this method mainly used image rather than alphanumerical as password.

IEEE REFERENCE: IEEE Paper on CSPA**, 2013**

MAT 7033. IDENTIFICATION OF SELECTED MEDICINAL PLANT LEAVES USING IMAGE FEATURES

ABSTRACT

Identification of proper medicinal plants is quite challenging and it is the time to protect medicinal plants since many plant species are becoming extinct. Leaves are the key components of a plant. Here we have proposed a method for the extraction of shape, color features from leaf images to identify the exact leaf class. The key issue lies in the selection of proper image input features to attain high efficiency with less computational complexity. This approach is more promising for leaf identification systems that have minimum input and demand less computation time. This work is implemented using MATLAB.

IEEE REFERENCE: IEEE Paper on ICAES**, 2013**

MAT 7034. LOCALIZATION OF LICENSE PLATE NUMBER USING DYNAMIC IMAGE PROCESSING TECHNIQUES AND GENETIC ALGORITHMS

ABSTRACT

In this research, a design of a new genetic algorithm (GA) is introduced to detect the locations of the License Plate (LP) symbols. An adaptive threshold method has been applied to overcome the dynamic changes of illumination conditions when converting the image into binary. A template based Matrix has been introduced to model the symbols layout in any License Plate. The system has been implemented using MATLAB and various image samples have been experimented to verify the distinction of the proposed system.

IEEE REFERENCE: IEEE Paper on Evolutionary Computation**, 2013**

MAT 7035. NON INVASIVE VEIN DETECTION METHOD

ABSTRACT

Detecting veins in a non-invasive procedure using Near Infrared (NIR)Light method is researched. Veins can be captured by using NIR camera. The image obtained from the camera is then processed using MATLAB software to find the area of interest. Artificial visualization of the venous network is achieved by projecting the image obtained over the patient's skin. This method can be applied in the field of security and health.

IEEE REFERENCE: IEEE LATIN AMERICA TRANSACTIONS, 2013

MAT 7036. NOVEL SEGMENTATION ALGORITHM FOR HAND GESTURE

ABSTRACT

Sign language is the most important methodology using which hearing and speech impaired people can interact with the rest of the world. Conversation with hearing impaired individuals gets complicated if the listener is ignorant of sign language. Hence it becomes important to construct a bridge between these two banks. Many sign language and hand gesture recognition algorithms have been developed in the recent years, to assist people who do not have knowledge of sign language to converse with the speech impaired but very few with good results exist. One of the major concerns with respect to hand gesture recognition is segregation or segmentation of the hand and identifying the gesture. This paper explores the various possible ways of segmentation using different color spaces and models and presents the best algorithm with highest accuracy to perform the same.

IEEE REFERENCE: IEEE Paper on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s)**, 2013**

MAT 7037. OBSTACLE DETECTION & ELIMINATION OF SHADOWS

ABSTRACT:

In today's world, Artificial Intelligence (AI) has begun to take center stage. The recent trend has been moving towards the creation of robotic devices which are capable of making spontaneous and effective decisions in demanding situations. Human errors may cause disastrous effects in certain circumstances; such errors can be reduced using AI. One of the most important uses of AI in recent times has been its application in automated vehicles. If the movement of vehicles were to be automated, much time can be saved, and moreover, some amount of travel related stress for humans is lifted. In order to implement the automation of locomotives, detection of any obstructions in the vehicle's path is a must. A successful attempt to perform the same has been discussed in this paper, through a novel yet simple algorithm utilizing image processing techniques. The simulation of the algorithm was performed using MATLAB.

IEEE REFERENCE: IEEE TRANSACTIONS on Computers**, 2013**

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