"REAL TIME HUMAN TRACKING FOR ROBOTIC APPLICATIONS"

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Abstract - Now a days everything is at our fingertips, and because of the gradual changes in the electronics world, robotics has been a very important part of our day to day life. Since robotics has been implemented in industries the quantity of production has been increased to a great extent.

By understanding the present world requirement, we have implemented a real time human follower robot, and we are going one step ahead to the present technique. This robot detects the human face. Once the person is detected, the robot will follow and it will bypass all the obstacles. Because of the cost factor, we have not made any physical robot but a prototype of the same using a DC motor. The motor runs once the person's face has been detected.

1.INTRODUCTION

This proposed system is not assembled for the commercial application but instead it is built prototype hardware. This approach uses advance mat lab tool installed in the computer system, along with that most competitive and advanced MCU (micro controller unit) ARM7 is used. The proposed system proven to be cost effective. The low power DC motor has been interfaced to the MCU through relay switch. The MCU has been programmed in the mat lab to track continuously for the human face by the web camera. After face detecting the Bbox (Boundary box) take care about processing the image.

As technology changes drastically all the task has been completed without any hassle. Advancement in robotics is needed badly the application of robotics is vast implemented in almost all industries.

By doing research and survey it has been noticed that all the industries are seeking enhancement in robotics so in order to full fill the demand for the same. The proposed system approach is a novel technique, it will overcome the drawback of present system. As per the survey this will be the efficient approach and can be judged as best in market.

The proposed system is a real time human follower, a robo which scans for a human face, once the face detected the robo will be active and begins the work which it is intended to do. Anything other than human face is obstacles or an undesired object.

2 DESIGN METHODOLOGY

In this anticipate human recognition is finished by the camera subsequent to distinguishing a man the picture is caught utilizing the B-box procedure as a part of the Mat lab.

Mat lab part is the underlying stage it takes the picture and send the code to the controller, if the code is legitimate then controller accomplish the yield from the DC motor or robo. Robo following the individual until individual leaving the camera range. The status of the robo or engine is shown on the LCD. The practical piece graph of this anticipate is as appeared in the Fig. 1
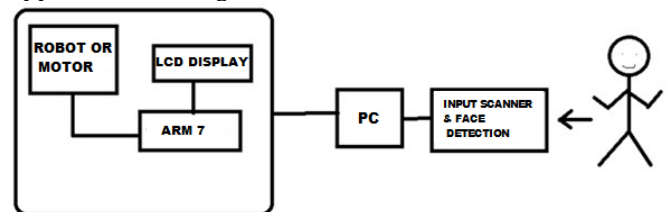

Fig-1 Functional Block Diagram of the Project

The demonstrated eye sightbased folk after structure is depended upon to give sensor responsibility to eyesightbased control of a versatile robo, which works in a social affair helping a folk follower with transportation of various things in indoor apps and in like manner in outside. For instance, in the robo operating condition of examination of tainted/dangerous circumstances, the robo fills in as a transportation robo, helping the human being to go on compartments with collected case from the earth. The eye sight structure for human being after inside such robo working circumstances must be able to perceive the human being, prepare the separation to the folk and track the folk, keeping an anticipated division between them. Ensuing to distinguishing the lessening in allotment, exhibiting the human's goal to approach the robo, the robo needs to stop and permit the human to put the holders with the collected cases onto the robo's versatile stage.

3. IMPLEMENTATION DETAILS

Mat lab (r2012a),keil µvision5 are the software's and ARM7, LCD, DC motor or robot, power supply are come across in hardware's. In this project Mat lab part is the initial stage it takes the image and send the command to the controller then controller achieve the output from the DC motor or robo. To detect and capturing the image of particular person in the mat lab by using the Bounding box technique, the complete flow of person detection (image capturing) and motor control is described as given below Fig 2.

Human being after infinite number of images follows has been utilized for the presentation of following in light of a changed Kalman channel. N is the measure of the

imperative N incessant graphs in which human being recognizing confirmation was beneficial. The smoothed apps recognize one individual coworker in the robo surroundings. Regardless, the indicated system is critical in like way in circumstances in which there is more than one human being in the robo surroundings.
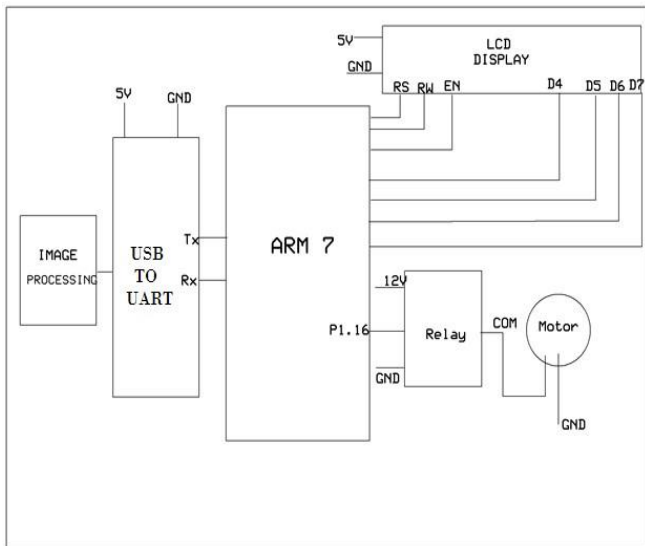

Fig -2: Basic Circuit Diagram of the proposed system

Human being after infinite number of images follows has been utilized for the presentation of following in light of a changed Kalman channel. N is the measure of the imperative N incessant graphs in which human being recognizing confirmation was beneficial. The smoothed apps recognize one individual coworker in the robo surroundings. Regardless, the indicated system is critical in like way in circumstances in which there is more than one human being in the robo surroundings. Taking everything in account, the at first perceived individual in the presentation stage is picked as the individual to be taken after and him or her is filleted in the going with stage. In subsequently, paying little regard to the way that different people enter the scene, the robo can keep taking after the individual chose for following in the presentation stage. With a specific choosing target to satisfy this errand, the going with framework works under the presumption that the three dimensional position of the took after individual can't all of a sudden change between two back to back lodgings and along these lines it can unequivocally find the picked individual in element lodgings. This holds the length of the all-inclusive community in the scene can be unmistakably seen from each other. Regardless in the event that one of the overall public by chance upsets the human was tailed, him/her is not in the field of the camera's perspective any all the more, yet the proposed changed Kalman channel keeps envisioning his/her position, as clarified in the running with.

The SV based human being area is initially associated with the entire photo of original N picture sets to secure human being acknowledgment vector. The planning of the entire pictures, which infers isolating the components of all the

separated things in robo surroundings and masterminding them as having a spot with the "human" class or not having a spot with the "human" class is especially monotonous. Remembering the finished objective to perform time intense human after, as is basic for lively time robo control, the depicted SV based human acknowledgment is from the corner N+1 associated with the photo area of interest, rather than to the whole picture. The setting of the photo is done utilizing the expected estimation of the foreseen estimations of the three dimensional position of the human concerning the game plan of the LS camera and what's more the foreseen estimations of the three dimensional headings of the corner motivations behind the folk bouncing box. Using the foreseen estimations of the three degree point orchestrates, the two dimensional bearings of these centers in the photo diagram pair N+1, which describes the photo, are determined by so called three degree and two degree graphing, the expected estimation of results from the balanced Kalman channel as smoothed by the framework delineated in the going with. In this proposed method human detection is done by the camera, the used laptop the web camera to detecting a person the image is captured using the B-box technique in the Mat lab. Mat lab part is the initial stage it takes the image and send the code to the controller, if the code is valid then controller achieve the output from the DC motor or robo and the LCD display displayed START. Robo continuously tracking the person until person going out of the camera range. Once the person out of the camera the motor will be stopped and then LCD indicate STOP.

4 RESULTS AND DISCUSSION

In the proposed system mat lab part checks the presence of person, it scans continuously for a person who has to be within 3 feet of distance to get noticed or else the device can't detect the person. Consider any person standing in front of the web camera and he have to stand 2 seconds. Hardware controller will drive the motor from inputs given by the mat lab.
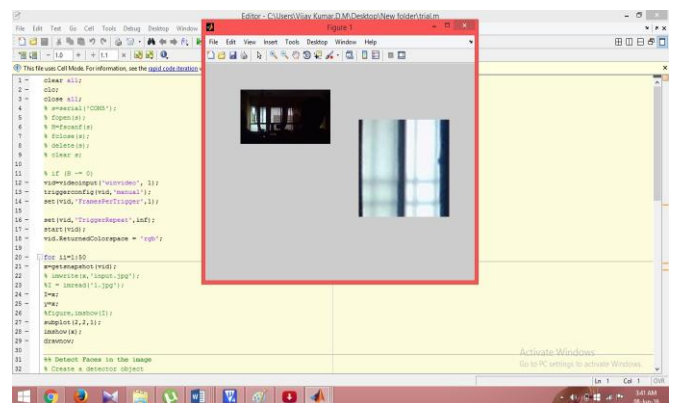

Fig -3 Snapshot of Activation and initialization of the Device

Fig 3 shows the initialization and activation of the device, the camera will be on and scans continuously. Once a person came in front of camera it will detected.
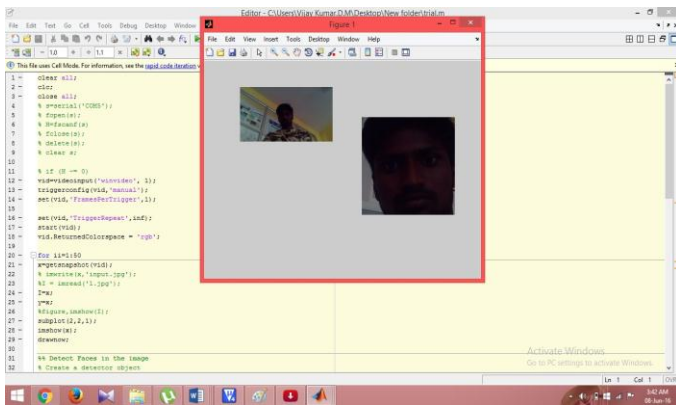
Fig 4 Snapshot of Face detection by the device

The person came in front of the camera then the device detected the human and it recognize his face is as shown in the fig 4. Once the human face recognized by the camera then the mat lab command to the controller for the further process.
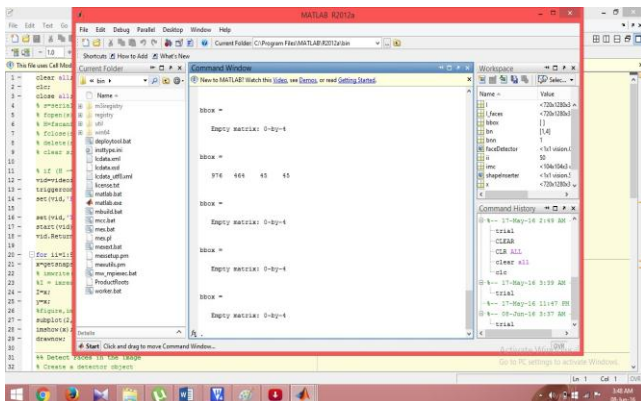

Fig 5 Bbox values

After recognizing a human face the Boundary box (Bbox) shows the Matrix array is as shown in the fig 6.3.

Fig 6 Hardware part of the proposed system

The proposed system hardware is as shown in the fig 6 it consists of LCD display ARM7 controller relay motor. If the command sent by the mat lab to the controller. If received command is valid then controller drive the motor or robo as

per the program code. The system is more useful in the public places like water distribution and also suitable for many real time applications.

5 CONCLUSION

The present world has robots in many applications but this technique is different from those. The proposed system has a stand by robo it can work without taking any rest and monitoring person it is very essential to the society. Providing of pure drinking water is also difficult task in public places like bus stand, railway station. People are suffering for that because the continues maintenance is very challenging work rather than the service providing. The robot take the responsibility of the work and it will do the best by the human recognition. This proposed system achieved the expected output in the human face recognizing.

6 Future Enhancement

The proposed strategy can be stretched out in the field of automation and highly intelligent robo. The proposed method can be enhanced further to scan full human body scan to recognizing. It can be implemented as a head counting machine other crowded places like malls.

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