Targets in Drone and QUADCOPTER Video Streams Using Open CV

Mrs.Sheela shantha kumari[1], Bhuvaneshwaran.S[2], Nagarjun.V[3], Yuvaprakash.D [4]
Assistant Professor[1], Department of Computer Science and Engineering,
Vel Tech High Tech Dr Rangarajan Dr Sakunthala Engineering College, Avadi, Tamilnadu.
UG scholar[2, 3], Department of Computer Science and Engineering,
Vel Tech High Tech Dr Rangarajan Dr Sakunthala Engineering College, Avadi, Tamilnadu.
sheelashanthakumari@velhightech.com[1]   bhuvanesh293@gmail.com[2]   arjunvsrinivas@gmail.com[3]
arulyuvanfeb14@gmail.com[4]

Abstract

To recognize and trailing the $64000 time question is indispensable thought in pc vision. With a specific end goal to distinguish the thing first make the required and significant stride to gather information kind the various pc vision applications. This thought is utilized for police examination reason, screen the armed force base, activity observing and human machine communication. In this venture robots can locate the thing and pivot as left and right position thus advance and in reverse relies on the thing development. It keeps up the steady separation between the protest and along these lines the robot. Camera is appended to the servos for skillet and tilt. We utilize linuxos with python cryptography to decide the thing with open cv.

Index Terms- Cloud, *Keys, Access Privilege*

1. INTRODUCTION

Raspberry pi is the single board PC or smaller than normal PC. It is a little scale PC thus of size is somewhat bigger than the MasterCard. This gadget is sufficient to run the recreations, word preparing like work environment, photograph proofreader and extra technique will be worked with comparable magnitude.it is an instruction devices to be used for individuals who take in extra concerning programming. It is not substitute for Linux mac or windows os. Pi in view of arrangement of chip with arm processor. The RAM is here utilized all about256-512. Here boot media we will utilized as South Dakota card that can't be encased inside the gadget, gets to the persistent measure of data as possible. Therefore, there is a need for more progressed clever target acknowledgment frameworks. The Raspberry Pi is a series of small single-board computers developed within the uk by the Raspberry Pi Foundation to push the teaching of basic engineering science in colleges and in developing countries.[3] The original model became much more popular than anticipated,[6] selling outside of its target market for uses like artificial intelligence. Peripherals (including keyboards, mice and cases) are not enclosed with the Raspberry Pi. Some accessories however have been enclosed in many official and unofficial bundles. An attention-grabbing side of the Raspbian project area unit the unofficial variants created by passionate users. Arch UNIX system ARM is a fork of Arch Linux engineered for ARM processors. This distro has a long history of being employed on a large range of merchandise, including the Pogoplug, and on the Raspberry Pi it's fast and stable. Christo Ananth et al. [4] proposed a system, in which a predicate is defined for measuring the evidence for a boundary between two regions using Geodesic Graph-based representation of the image. The algorithm is applied to image segmentation using two different kinds of local neighborhoods in constructing the graph. Liver and hepatic tumor segmentation can be automatically processed by the Geodesic graph-cut based method. This system has concentrated on finding a fast and interactive segmentation method for liver and tumor segmentation. In the preprocessing stage, the CT image

Sheela shantha kumari et al,   *©IJARBEST PUBLICATIONS*

**International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.25, February 2017**

process is carried over with mean shift filter and statistical thresholding method for reducing processing area with improving detections rate. Second stage is liver segmentation; the liver region has been segmented using the algorithm of the proposed method. The next stage tumor segmentation also followed the same steps. Finally the liver and tumor regions are separately segmented from the computer tomography image.

2. RELATED WORK

2.1. Light sensor

A light detector is enclosed within the proximity detector class, and it is an easy sensor that changes the voltage of Photoresistor or electrical phenomenon cells in concordance with the number of sunshine detected. A light detector is employed in very fashionable applications for autonomous robots that track a line-marked path.

2.2.Colour sensor

Different colour mirrored with totally different intensity, for example the orange color reflects red light in AN quantity larger than the inexperienced color, and this is the colour sensor. This simple detector is within the same vary with lightweight detector, but with a few additional options which will be helpful for applications wherever the golem has got to notice the presence of AN object with an exact color, or to detect the varieties of objects or the surfaces.

2.3.Touch sensor

The touch sensing element will be enclosed within the proximity sensors class and ar designed to sense objects at atiny low distance with or while not direct contact. This sensor is designed to find the changes within the capacitance between the on-board electrodes and also the object creating contact.

2.4.Ultrasonic sensor

These sensors are designed to generate high frequency sound waves and receive the echo mirrored by the target. These sensors square measure used in a good vary of applications and are terribly helpful once it's not vital the detection of colours, surface texture, or transparency.

2.5.Infrared sensor

An infrared device live the IR light-weight that is transmitted within the atmosphere to search out objects by Associate in Nursing IR junction rectifier. This type of device is extremely well-liked in navigation for object shunning, distance measured or line following applications. This sensor is terribly sensitive to IR lights and daylight, and this is the most reason that an IR device is employed with nice exactness in areas with low light-weight.

2.6.Sonar sensor

The sonar device will be used primarily in navigation for object detection, even for small objects, and generally square measure utilized in comes with an enormous budget as a result of this kind of device is incredibly costly. This sensor has high performances on the ground and in water wherever it will be used for submersed AI comes

2.7.Laser sensor

Sheela shantha kumari et al,

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.25, February 2017

A laser light-weight is terribly helpful for following and detection a target set at an extended distance. The distance between sensor and target is measured by hard the speed {of light-weight|of sunshine} and therefore the time since light is emitted and till it's came to the receiver.

A laser detector {is terribly|is extremely|is incredibly} precise in mensuration and within the same time is very big-ticket.Most popular combination for detection associate degreed trailing an object or police work a personality's face could be a digital camera and also the OpenCV vision software package. This combination could also be the simplest in detection and tracking applications, but it is necessary to own advanced programming skills and a mini laptop sort of a Raspberry Pi.
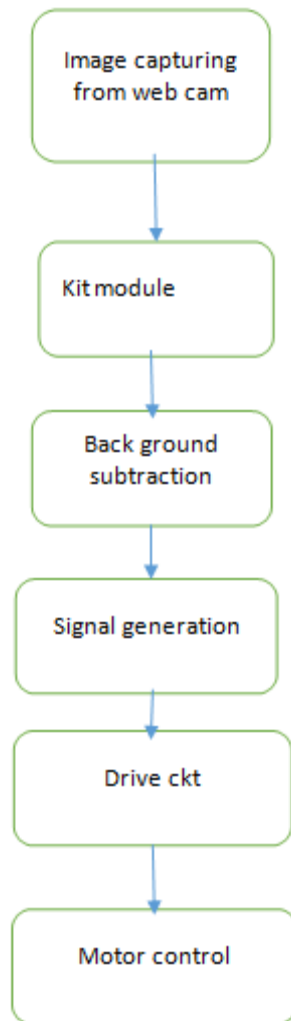
3. ARCHITECTURE DIAGRAM
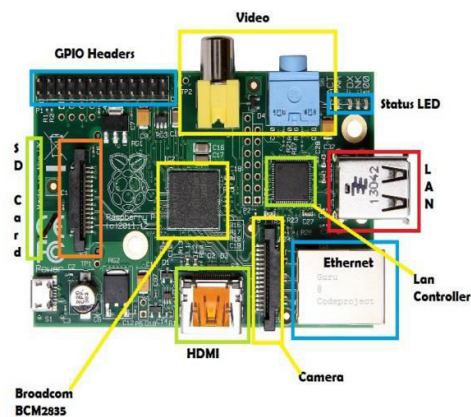
Fig 3.1 Raspberry Pi Architecture

The Broadcom BCM2835 SoC utilized as a part of the original Raspberry Pi is to some degree equal to the chip utilized as a part of original cell phones (its CPU is a more seasoned ARMv6 engineering), which incorporates a 700 MHz ARM1176JZF-S processor, VideoCore IV illustrations handling unit (GPU), and RAM.

4. WORKING

The image was taken by the camera which was placed in the top head of the raspberry pi kit, the camera equipment was connected via usb port. The capturing image from the web cam connected executed in the linuxos software. The extracted image taken out from the web camera send to the raspberry pi kit and followed to execution of python coding. In the python coding the signal are generated, these generated signals coming from the execution of kit and sent to robot. By combination of sixth sense robotic kit and raspberry pi followed the color object robot effectively. By tracking the ball we can monitor in pc itself. This photo booth is primarily based on a Raspberry Pi with a pi camera module. With this clever little set up, the Raspberry Pi acts as a receiver that connects to your smartphone and details all the aircraft in the sky around you and their data as well as decoded ADS-B decision signs, location, altitude and speed, allowing you to notice the simplest spots to pitch up along with your generation controllar.

Sheela shantha kumari et al,   ©*IJARBEST PUBLICATIONS*

**International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.25, February 2017**

Fig 4.1 Block diagram of working model

5.IMPLEMENTATION

5.1. Photo booth

Processing Re-write Suggestions Done (Unique Article)

Rather than let people take their own footage at your party, why not set up your own photo booth? Dictate the media and management the message! We're not going thus far on counsel you ought to ban phones from your party although, you can still let your guests reassure people that don't care that they're at a celebration.This photo booth is primarily based on a Raspberry Pi with a pi camera module. It incorporates a touchscreen and can email footage or

transfer them for sharing with the buddies UN agency didn't listen and currently have sq. heads Once installed, users will begin mining and can even connect additional Raspberry Pis to extend the speed..

5.2 3D scanner

3D printing is the biggest tech introduction since the iPod, if the iPod cost a lot of than most people's cars. Unfortunately, the tech could take a few a lot of years before it becomes actually accessible. However, don't let that stop you from scanning all the things you'll be printing when it will get there.For this project, instructables.com user the_anykey used forty Pis and forty cameras (although stresses it may be through with abundant fewer) also as 40 8gb Mount Rushmore State cards and, disappointingly, just a single power.

1. Google Glass never quite happened did it however don't worry, open source developer Adafruit developed a Raspberry Pi power-driven wearable show housed in a 3D written shell that clips on.

2. Bitcoin has gotten a bit of a nasty rep since its launch in 2008 but truly has several advantages over ancient currencies, mainly that there aren't too several fat cats swimming in bitcoins and riant maniacally.

Getting ahead in the bitcoin game is done by mining that apparently involves thusme type of maths so forget that. Fortunately, your Raspberry Pi is here to save you, specifically the Raspberry Pi 2.

The Raspberry Pi 2 has a massive RAM memory and a high process power which may handle the facility hungry jack computer code like BFGMiner, is a 'modular ASIC/FPGA featuring observance and remote interface capabilities'. Once installed, users will begin mining and can even connect additional Raspberry Pis to extend the speed.

5.3 Plane spotting with Stratux

Plane spotting is a little bit of a distinct segment hobby however there area unit so much weirder ways in which to pay it slow and a minimum of this one isn't felonious.With this clever little set up, the Raspberry Pi acts as a receiver that connects to your smartphone and details all the aircraft in the sky around you and their data as well as decoded ADS-B decision signs, location, altitude and speed, allowing you to notice the simplest spots to pitch up along with your vacuum bottle.

5.4.Pi hacker

With the introduction of any new technology, there's always somebody waiting to work out the way to do some unhealthy stuff with it, like a shovel or the thermonuclear bomb.By installing the network penetrating OS Kali UNIX operating system on a Raspberry Pi, not only will you crack Wi-Fi, find Bluetooth weaknesses and get yourself completely (and most likely, deservedly arrested) you can conjointly have it off on the go!

5.5.Wireless printer

Despite printers being consistently developed each year, they are still virtually universally liable to the precise same errors they were in 1989 - the paper is crowded, printer cannot connect to the pc or the ink has seemingly nonexistent – therefore if you get one that's reliable, it's understandable you'd wish to stick with it.Rather than forking out for a brand new one that only may work, a Raspberry Pi will rework your previous printer into a wireless printer therefore you can keep step with the flashy, other-room-printing neighbours.

1 War Field Spying Robot with a Night Vision Wireless Camera by automaton Applications

2. Fire Fighting Robot Remotely Operated by Android Applications.

5.6 War Field Spying Robot

This intelligent robot with wireless camera will be operated remotely for observation additionally as dominant purpose. In the dark nights or dark places, this robot is capable of capturing videos, and then transmitting them remotely to a computer or TV by victimization wireless technology.This prototype of military automaton is used in war fields to grasp regarding the standing of the enemies around that space. It monitors the area with a camera by moving the camera to numerous positions or places remotely by Associate in Nursing humanoid application.This war field spying robot uses microcontroller as the central process unit, a Bluetooth modem to receive the command signal from the humanoid phone, an humanoid phone with a GUI application, a night vision wireless camera with remote area transmission capabilities, an IR light-emitting diode for night vision lighting, a motor driver to drive a set of motors to manage the vehicle movement and other miscellaneous associated elements. Christo Ananth et al. [5] proposed a system in which the cross-diamond search algorithm employs two diamond search patterns (a large and small) and a halfway-stop technique. It finds small motion vectors with fewer search points than the DS algorithm while maintaining similar or even better search quality. The efficient Three Step Search (E3SS) algorithm requires less computation and performs better in terms of PSNR. Modified objected block-base vector search algorithm (MOBS) fully utilizes the correlations existing in motion vectors to reduce the computations. Fast Objected - Base Efficient (FOBE) Three Step Search algorithm combines E3SS and MOBS. By combining these two existing algorithms CDS and MOBS, a new algorithm is proposed with reduced computational complexity without degradation in quality.

The customer can screen the war field space by prevalent the advancement of the vehicle by A robot application. Exactly when the customer touches the position summon in the machine application, the banner from the system is gotten remotely through a Bluetooth modem in the golem, and is further traded to the microcontroller as showed up in the figure.

The microcontroller is adjusted in a way that in the wake of tolerating looking at flag from the Bluetooth, it sends the charge signs to a motor driver that drives the course of action of motors to move the vehicle inside the fancied bearing. Besides, the remote camera sends the video signs to a recipient station or unit, remotely, to screen reason. Putting out flames robot is completed as a fire engine to extinguish the fire. This sort of robot is used as a piece of military too in various divisions for splashing fire if it happens by incidents, for instance, get ready accidents. The mechanized vehicle involves a water tank and a pump to sprinkle water. Like the above wander, this robot can in like manner be controlled by using an Android-based application for remote operation reason, yet – furthermore requires another motor driver and a motor to work the sprinkle arm in a looked for course and a pump to extend the heaviness of water.

This robot also uses a microcontroller to control the general operation. By getting the request signals from the android application by method for a Bluetooth modem, the microcontroller alters the advancement of the vehicle through a motor driver IC. Next, the sprinkle bow or arm position of the robot gets adjusted by another motor driver IC that gets charges from the Android adaptable.

The microcontroller of this system is programmed in Keil software and operates the relay for the pump (for switching on and off), and also operates two motor driver ICs for moving the vehicle and the sprinkle arm.

Sheela shantha kumari et al,   *©IJARBEST PUBLICATIONS*

3.Pick-N-Place Robotic Arm and Movement Controlled by Android Wirelessly

This military robot will safely handle bombs particularly whereas catching them and avoids the danger of explosion or additional pressure on suspected object. It is equipped with a soft catching gripper for pick and place operate. The remote operation is achieved by a Bluetooth modem via associate degree golem phone based mostly graphical user interface application

This pick and place mechanism uses 2 motor driver ICs to management 2 sets of motors. One set of motors is used to manage the vehicle's movement and therefore the other set to control the soft catching gripper, associate degreed this can be done by pressing the corresponding buttons on an golem application. After selecting the object, the soft gripper holds the object and places it to a different place by adjusting the vehicle movement. The microcontroller's program manages the overall control function, and the program may be modified by the user supported the need. Based on the signals from the Bluetooth, the microcontroller sends command signals to the motor driver ICs. In this system, there is a chance to feature a wireless camera for monitoring overall method.

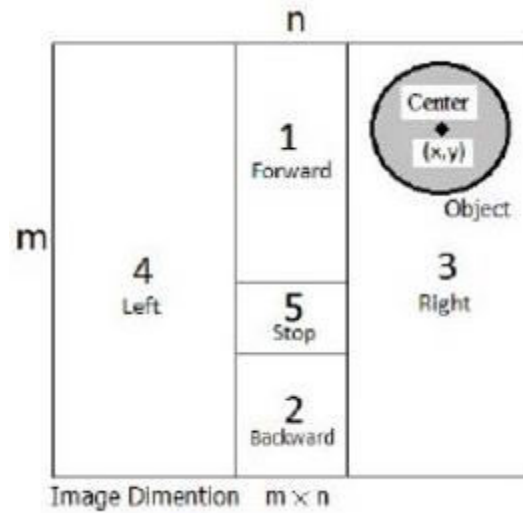4. Voice Controlled Robotic Vehicle with Long Distance Speech Recognition

This type of robotic vehicle's operation depends on the voice commands that square measure received by the speech recognition module. The command can be operated by each speech and push buttons controls. Such a type of Voice-controlled robotic vehicle contains each transmitter and receiver circuits to attain management objective. The receiver circuit consists of a microcontroller which is placed within the robotic vehicle Associate in Nursingd consists of devices like an RF receiver, a LASER module, a motor driver IC Motor look out landmines at intervals the bottom by sensing them whereas moving a vehicle ahead. A metal notice or circuit is attached to the current robotic vehicle to observe metal components at intervals the bottom. The Remote operation of this vehicle to control the direction are going to be potential with Associate in Nursing RF-based remote as transmitter that sends commanding signals to the receiver circuit. This metal-detector robot is same as the voice-based vehicle that has been mentioned higher than – during which the transmittal circuit consists of a button management and an RF transmitter. However, an extra sensing element is additional to the receiver circuit, here. Whenever the vehicle encounters any metal part on its method, a resonance change happens in the coil- as a result, the control signals move forward towards the microcontroller.

Upon receiving the signals from the detector, the microcontroller gives out a noisy sound and additionally ceaselessly interacts with the receiver to move the vehicle in a much desired direction or path. In addition to those military robots, some of the robots that area unit ‌are} useful in military applications are given below and their real- time processing is additionally given within the corresponding links. Line Following Robotic Vehicle RF Controlled Robotic Vehicle with a Laser Beam Arrangement.

6. ROBOT SET UP

The main factor is movement of robot with appropriate direction, first we have to calculate the coordinates. In case any problem while calculating the coordinates point robot gets malfunction it will not able to tracking the object is difficult. Here the open cv does the co-ordinates calculation same like as matlab. The robot calculate the center spot and color object move from left and right wheel also moves. Here the motor we can use dc motor this motor moves forward and backward direction depends of object movement.

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.25, February 2017

Fig 6.1 Different segment of image plane

No	Status	Command	Left Wheel	Right wheel
(1)	Center in segment 1	Forward	Forward	Forward
(2)	Center in segment 2	Backward	Backward	Backward
(3)	Center in segment 3	Right	Forward	Backward
(4)	Center in segment 4	Left	Backward	Forward
(5)	Center in segment 5	Stop	Stop	Stop

Table 6.1 Movement of the robot

7. CONCLUSION

This venture confronted many difficulties and set backs, general it has fulfilled the points which were set out, surpassing these in a few zones by acquainting the hypothesis required with enhance the objective discovery qualities. In the event that this venture is proceeded one year from now there are numerous ranges which can be enhanced, however this years extend group has certainly propelled the venture towards the future objective of this objective recognizing being utilized as an educating instrument.

8. REFERENCE

[1] D. Fox, W. Burgard, H. Kruppa, and S. Thrun, "A probabilistic ap-proach to collaborative multi-robot localization," Autonomous Robots,vol. 8, no. 3, pp. 325–344, 2000.

[2] S. Roumeliotis and G. Bekey, "Distributed multi robot localization, "IEEE Trans. Robot.Autom., vol. 18, no. 5, pp. 781–795, Oct. 2002.

International Journal of Advanced Research in Basic Engineering Sciences and Technology (IJARBEST)
Vol.3, Special Issue.25, February 2017

[3] Howard, M. Matark, and G. Sukhatme, "Localization for mobile robot teams using maximum likelihood estimation," in Proc. IEEE/RSJ Int. Conf. Intell. Robots Syst., 2002, pp. 434–439.

[4] Christo Ananth, D.L.Roshni Bai, K.Renuka, A.Vidhya, C.Savithra, "Liver and Hepatic Tumor Segmentation in 3D CT Images", International Journal of Advanced Research in Computer Engineering & Technology (IJARCET), Volume 3,Issue-2, February 2014,pp 496-503

[5] Christo Ananth, A.Sujitha Nandhini, A.Subha Shree, S.V.Ramyaa, J.Princess, "Fobe Algorithm for Video Processing", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (IJAREEIE), Vol. 3, Issue 3,March 2014 , pp 7569-7574

[6] C. Urmson et al., "Autonomous driving in urban environments: Boss and the Urban Challenge," J. Field Robot., vol. 25, no. 8, pp. 425–466,Aug. 2008.

[7] Cunningham, V. Indelman, and F. Dellaert, "Ddf-sam 2.0: Consistent distributed smoothing and mapping," in Proc. IEEE Int. Conf. Robot. Autom., 2013, pp. 5220–5227.

[8] X. R. Li and V. P. Jilkov, "Survey of maneuvering target tracking. Part v. multiple-model methods," IEEE Trans. Aerosp. Electron. Syst., vol. 41, no. 4, pp. 1255–1321, Oct. 2005.

[9] C.-H. Chang, S.-C. Wang, and C.-C. Wang, "Vision-based cooperative simultaneous localization and tracking," in Proc. IEEE Int. Conf. Robot. Autom., 2011, pp. 5191–5197.

[10] C.-C. Wang, S.-C. Wang, C.-H. Chang, B.-W. Wang, H.-C. Chao, andC.-C. Chou, "NTU Robopal Team Report and Code Release 2011,"Jan. 2012 [Online]. Available: http://www.csie.ntu.edu.tw/ bobwang/RoboCupSPL/

[11] C.-C. Wang, C. Thorpe, and S. Thrun, "Online simultaneous localization and mapping with detection and tracking of moving objects:Theory and results from ground vehicle in crowded urban areas," Taipei, Taiwan, Sep. 2003.

[12] S. Thrun, W. Burgard, and D. Fox, Probabilistic Robotics. Cambridge,MA, USA: MIT, 2005.

[13] S. Matzka and R. Altendorfer, "A comparison of track-to-track fusion algorithms for automotive sensor fusion," in Proc. IEEE Int. Conf.Multisensor Fusion and Integration for Intell. Syst., 2008, pp. 189–194.

[14] Jolliffe, Principal Component Analysis. Hoboken, NY, USA:Wiley, 2005.

[15] P. Anderson, Y. Yusmanthia, B. Hengst, and A. Sowmya, "Robot localization using natural landmarks," in Proc. RoboCup Int. Symp., 2012,pp. 118–129.

[16] J. Brindza, A. Thomas, S. Lee, W. McDermid, Y. He, and D. D. Lee, "Active sound localization in a symmetric environment," International J. Adv. Robot. Syst., vol. 10, pp. 1–8, 2013.

[17] C.-K. Chang, C.-H. Chang, and C.-C. Wang, "Communication adaptive multi-robot simultaneous localization and tracking via hybrid measurement and belief sharing," in Proc. IEEE Int. Conf. Robot. Autom., 2014,pp. 5016–5023.

Sheela shantha kumari et al,   *©IJARBEST PUBLICATIONS*

[18] N. Henderson, S. P. Nicklin, A. Wong, J. Kulk, S. K. Chalup, and R.King, "The 2009 Nubots Team Report," Sch. Electr. Eng. Comput. Sci.,The University of Newcastle, Australia, 2009.

[19] S. Barrett et al., "Austin Villa 2011: Sharing is Caring: Better Awareness Through Information