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Autonomous Robotic Self Alignment furniture For Lab Auto-tagging

Mr. Priyam Sharma[1], Dr. Shrikant Honade [2]

[1]M.Tech Student, EVLSI, GHRU, Maharashtra, India
[2]Professor, EVLSI, GHRU, Maharashtra, India

Abstract - *Now a days every student every employee and all the working people having rush in their life. So they forget to arrange their furniture in working space which will create bad look for professionals environment also affect psychology. Mentally e thoughts during work in colleges after every session in laboratory teachers or lab assistants need to arrange chairs for next station which will take time. For this he proposed robotic chair which move automatically and follow tag these tags are predefined and fixed at valve or table whenever program runs these chairs automatically goes to the tag nearby*

Key Words: Object tracking, Robotic classroom, Self-placed chair, Ultra object detection.

1. INTRODUCTION

Our moto is to arrange college laboratory chairs in a particular manner which will create a better look for classrooms this kind of shares will increase reliability. Our main Moto is to increase decoration and looks of a professional laboratory. For this purpose we create a system which based on the open CV libraries and a platform of raspberry Pi we use raspberry Pi for camera interfacing which is very easy for us so we easily create interfaced camera with hardware using USB protocol also we want to move chair buy wheels so we have lots of option such as Omni wheels and Magnum wheels and normal disc wheels try to make a system on disk wheel because if you multiply a project cost 400 office chairs then the project cost is very much hai with respect to ordinary chairs. In that case we will try to reduce chairs cost as much as we can and make just required system rather than and over featured system. We had get a survey of various institutes coaching center colleges even corporate offices every conference room or a laboratory a base problem we found that after every situation no will care to arrange chairs and they directly left it's reduced decoration arrangement of bedroom it's a common thing that whenever you left your position that arrange your chair for the same position or place but the thing is people are in hurry for less time in work there just left out the room and forget to arrange there's again so we had also survey on which kind of institutes are facing such problems more and we got result are very surprised that college students or coaching institute students mainly cause of this kind of problems we can say that they are not that much mature that much professional understand such kind of things in their life so we take decision to reduce this problem from their lives also we had discussion with the lab assistants. As per him they told us that for a session of 40 minutes they will take approx 10 minutes to arrange their chairs for the next session and disturbance are very important for a life of a student because after arranging the chair they will take to switch on their computers their systems they will prepare them self start reading soap finally conclude to start work on automatic chair arrangement with self taking system only for laboratory in colleges and institutional level.

2. Related Work

For this we have studied various papers in research work previously based on such kind of topics in the topics we found a good research work that we are considering as a base for a new invention firstly e b tech admission automobile chair which work on a very normal technology that's uclap detection in this kind of project they make a robotic movable solution which triggered by the crab after every conference station attendant or assistant it needs slap this club frequency is detected by microphone placed in the classroom or a conference room and that goes to triggered by the microprocessor microcontroller

Ross create a chair which automatically work on self adjustment height from ground [11]. Rose has created a very good solution based on the automation in height but she took a reference from the ground so for a plane surface it will work properly and a platform used by a rose is a language which is a very good alternative of python nowadays also she used to control this whole structure using joystick.

But if we are controlling a system using joystick then the purpose of the project it's little bit different from the regular chairs because it will use as a wheelchair more rather than a classroom or a conference chair because let's have a real time example whenever a person left his chair he forget to make it align with respect to table that's a human tendency we are talking about if we are providing a remote and tell him to control history after left it then they don't[2].

He system will work on desired station and whenever operator message him back even leg navigate itself to the predefined positions but search land of work and proposed models[4]. Also require user interface to arrange themselves his model will work to transport goods and other containers list of small size from one position to another position. In

this project author try to work dental chair automation which provide all the tools and required instruments nearby as per the requirement specific reason assistant from operation this is a good project but removal of human manpower will leads to advance technology but remove employment. Project will help to provide dental tool arrangement in condition of urgent treatment patient.

3. Methology

Instruments of project we need to use open CV library of python of image processing here once we have successfully installed open CV after creating virtual environment of python first Moto to detect specific tag by the camera . Firstly firstly built a system using raspberry Pi model 3b ex1 SD card storage of 16 GB e class 4this SD card needs to install raspberry and operating system so we did this using win32diskimager. Now we develop a python code which detect specific tag of different colour different alphabets different shape combinations these tags are specially design for project which create unique tracking system for each chair.

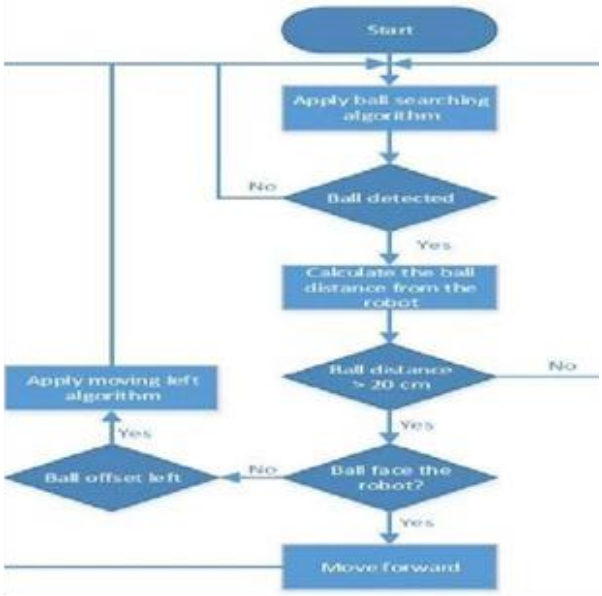

Chart -1: Flow Chart

The specialty of such kind of tags that you can where's same kind of trousers for gents it also happen you can wear trousers return design of alphabets but it's hard to possible that a person is wear trousers of same colour and same alphabet design To detect a person is seated on chair or not we use ultrasonic sensor with raspberry Pi interfacing with ultrasonic sensor work on ultrasound high frequency which reflect its wave from any object recent it eco wave which has been detected by Pi.

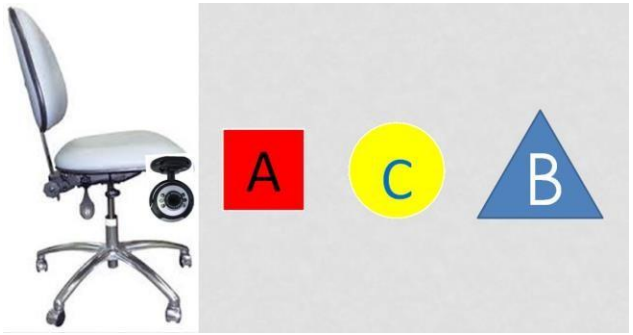

Fig -1: Prototype View

So this process will give advantage of stop chair when someone is seated on the top ultrasonic sensor will provide flexibility of color. Whenever someone is using this chair this table chairs remain in study position and it will be hold till someone just left it. Once ultrasonic give trigger to start detecting predefined tags into the frame. If these tags are focused at center of the frame and 20% radius from the origin then system will go for word that means ears move towards the table but if this tags focused left side of frame or right side of frame then chair move accordingly.

4. Result

In this project I made successful in testing of RGB object tag tracking system using open CV image processing tool for chair also tested human object detection in front of chair . So if any object for student TTE detected by chair in front of his face system will remain shut down and chair will not move although if he or she is seated on chair that time system will not follow any tag to reduce accident in area. The reason behind shut down the chair during student occupied is because sometime student where green blue black for a coloured trousers which can be a consequence of accident because system in start following the tag but actually system is following the trouser color

5. CONCLUSIONS

Our main moto to develop such kind of system which provide automation in unwanted human process build faculty workplace general. Thereon purpose, the planned style will contribute considerably within the long haul. Once a gaggle of Robotic auto tagging detection chairs are going to be employed in places sort of a sensible faculty labs, these can decrease needed daily human efforts and time consumption for works like re-arranging all the chairs to their places at a really cheap price. As each invention has some scopes for additional extension, the planned work additionally doesn't disagree during this concern. In future, the planned model may be trained to be told a lot of common house objects like table, bag, stool.

These chair can solely work once students left chairs, thus this cut back accident possibilities by eightieth.

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BIOGRAPHIES

Mr. Priyam Sharma having Industrial experience of 5 years. Currently working as Director of DoxPro Robotics Pvt. Ltd. Also Pursing M.Tech from GH Raisoni University. Amravati

Dr. Shrikant Honade having several years of Teaching Experience with many practical projects for college also providing his guidance. He is passionate about electronics and circuit.