A Desk Analysis On Humanoid Robot

Neelima Mishra[1], Dr. Rashid Hussain[2], Dr. Dinesh Goyal[3], Dr. Ashish Dutt Sharma[4]

1. Ph.D. Scholar, Centre of Cloud Infrastructure and Security, Suresh Gyan Vihar University, Jaipur, Rajasthan, India, neel@clubfirst.org
2. Associate Professor, Electronics and Communication, Suresh Gyan Vihar University, Jaipur, Rajasthan, India, Rashid.hussain@mygyanvihar.com
3. Principal, Poornima Institute of Engineering and Technology, Jaipur, Rajasthan, India, dinesh8dg@gmail.com
4. Director, Gurukul Institute of Engineering and Technology, Kota, Rajasthan, India, ads.edu@gmail.com

Abstract
There is diverse course advancement of wheel robots are active for covered surroundings and various robots are helping within society in diverse sincerity regions in like manner using one as of the existing course methodology. A bit of the allocation robots are outstandingly renowned similar to robots of China allocation in diners are using stroke fan course advancement and a couple of papers discussing the RFID based course development as well. In this assessment, the relationship of SLAM based course advancement with line ally and RFID Navigation development independently to prove the extension in adequacy of SLAM robots in assessment with others is discussed. Humanoid robots are engaging; in various public domains robots are allocation and besides pull in general society by their stunning capability just as by their arrangement. Regardless, for new organizations the gathering of a humanoid robot goes with massive cost, as a result it is critical to make a light heaviness robot to diminish the rate devoid of distressing the presentation of robot.
Keywords: Line Following, RFID (Radio Frequency Identification), SLAM (Simultaneous Localization and Mapping), Humanoid Robot

1.0 Introduction: The execution of new innovation and novel thought are the valuable present for this cutting edge age bunch. The meaning of robot is change by forever. Each and every are having their own definition on robot yet a few terms utilized are basic in all that are self-sufficient, machine, speed and exactness. For various age gathering of individuals the discernment about robot is additionally extraordinary like for youngsters, a robot is humanoid machine with loaded with super powers. For early life, a robot is a smart machine that can play out any undertaking independently and definitely and for matured people robots are machine that offers care to them. The word robot comes from the Czech word "robota", robota signifies "constrained work" [1]. This word, "robota" was first utilized in a play in 1920 in which robot crushed the expert eventually. There are some regular things in existing robots:

All are line adherents: Robots in cafés used to follow an attractive line suffocate on floor of eatery to serve. Prior to recruiting a robot in café, the cafés need to change the inside and guest plan to give a static way to robots to follow or to explore towards the objective to serve.

They can't serve on table: Human server do serve the plate on table yet in the event of automated servers, subsequent to arriving at the objective table to serve they do stop before table and in a portion of the cafés in China, client need to screen every single plate and when a robot accompanying their request they need to tap on head of robot to stop him. In the two cases client need to pick their request all alone.

They can't investigate on incline way: If there is a little development up way or a little evaluation path in restaurant then it is basic for human worker to helpfully walk around that and serve immaculately without separating food. Nevertheless, if there ought to emerge an event of serving robots it is difficult to investigate on incline route with food in plate. This is in like manner typical in serving robots of China and Japan that they simply continue onwards a plane floor by subsequent the line.

2.0 Literature Review: In sci-fi movies robots can do every one of the fills in as human do even they could carry out family works likewise without human, together with managing children, using car, getting ready meals, cleaning houses and so on those types of social robots are not so remote from the real international. This writing audit by way of specialists are zeroing in on the exploration papers

wherein they are analyzing approximately some friendly robots which might be extensively end up the piece of human existence in achieving different programs and furthermore the robots in neighbourliness areas.

A Line Follower robot, because the name recommends, is a robotized guided automobile, which observe a visible line set up on the ground or roof. Usually, the visible line is the manner in which the line partner robotic goes and it is going to be a dull line on a white floor yet the alternate manner (white line on a faint surface) is likewise workable. Certain overall Line Follower Robots utilize vague enticing discipline as their strategies.

Large line supporter robots are continually utilized in undertakings for supporting the robotized introduction measure. They're likewise applied in military programs, human assist reason, improvement institutions, and so on

Line fan robot is one of the key robots that newbies and understudies would get their first mechanized commitment in. in this task, we have organized a fundamental Line Follower robotic making use of Arduino and some distinctive bits.

Line Following is in all likelihood the critical bits of forefront mechanics. A Line Following robot is a unfastened robot that can follow both a faint or white line this is drawn on a shallow degree containing an isolating tone. It is proposed to move normally and observe the made plot line. The robot a few sensors to peer the road as such assisting the robot with closing at the music. The grouping of four sensors makes its headway awesome and adaptable. The robot is pushed by using DC equipment engines to govern the progression of the wheels. The Arduino Uno interface is utilized to carry out and execute calculations to govern the rate of the engines, directing the robot to return the line with no difficulty.RFID is a tweaked perceiving proof system that depends after dealing with and by implication recovering information utilizing information passing on contraptions called RFID imprints or transponders. The force expected to work the information passing on gadget is moved utilizing a contactless advancement from an information getting contraption called a RFID peruser. The key correspondence between the peruser and the transponder of a RFID framework depends upon radio rehash (RF) headway. A RFID gadget consistently includes radio rehash (RF) names, a peruser with at any rate one receiving wires, and programming to manage the name readings. The peruser fire sears the imprints, getting their ID code and other data put away in their memory. Imprints can be either inert or dynamic. Latent imprints are initiated by the electromagnetic field made by the RFID receiving wire. Employments of RFID combine stock association, industry robotization, ID unmistakable bits of evidence and access control, hardware and staff following. Showed up contrastingly according to ordinary ID frameworks, for example, standardized unmistakable bits of verification, RFID names several benefits, since they don't need direct view and different names can be perceived all the while. Inferable from these properties, RFID has really discovered its way in the versatile mechanical advancement field, promising to contribute new reactions for information affiliation issues in basic course tries, like breaking point, organizing, target coming to, and thing affirmation.

Various authors had inspected in relation to how amicable robots do interface with individual customers. They planned a design during which they accumulate some critical focuses that were by then analyzed inside the social robot's neighbourhood. In this assessment paper [2] they facilitated these focuses keen on highlights and give details the associations of common designs, social limits and group environment which assist them in early a purposely coordinated model to understand about what social robots are. They elaborate the significance of common robot obviously.

| Hospitality Sector	Applications of robots
	•
In Hotels	• Front Desk Job • maintenance • check-in and check-out • Delivery Jobs
In Restaurants	• Table side entertainment • Taking and conveying orders • Chefs • Bartenders job • Dishwashing job
In various Meetings and Events	• Check-in Self-service • Attendant Front desk • Robot Server • Delivery by robots • Entertainment
At Airports	• Job of Cleaning • Check-in Self-service • Information provider • Conveyor belt • Job of Bag check and bag drop • Job of Airport guide
In Museums	• Information provider • Cleaning Jobs • Tour Guide
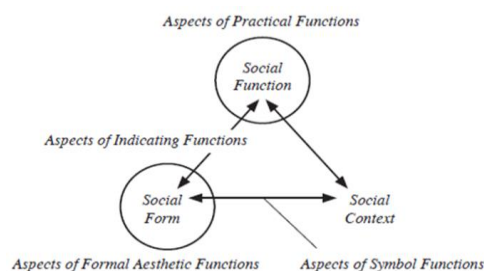
Fig 1.1 : Relationship between Social Function, Context and Social Form [3]

The composing outline of this part starts off evolved when robots are simply flushing that become year 1800. They perceive the powerful robots in instructions, which can be, robots that have been taking the human commitment to make choice and robots that have been taking choices without taking any commitment from human. With this sport plan, term independence is available in image; it offers the factor of dating of robots with human. Around there, mechanical robots are fundamentally utilized in collecting applications like welding, slicing, concealing, and so forth, those robots are

semi-independent. The entire composing have a look at achieved via reporters enables them in information the 3 investigation fields:

1. Affirmation of character and grasp assist robots via customers in warmth zones.

2. The effect on economic status whilst the use of robots in convenience adventures.

3. The results come in the wake of the use of the robots in friendliness ventures.

Table 1.1: packages of Robots in diverse hospitality regions
This paper, we motivate a financially smart plan of a mechanical that is utilized to play out the commitments of the attender, a wheeled versatile robot. The 2 significant giving a shot in bits of reduced improved mechanics are to accomplish disadvantage and course. Limit picks the space of the robot as for its current circumstance. Course is the headway of the robot beginning with a one area then onto the following. Here, the phenomenal course of action and portrayal of the QR code assisted us with limiting and examine the robot. A raspberry pi mounted with a camera is utilized to interface with the robot. The triangulation technique is utilized to tie the robot. Dijkstra's assessment is utilized to figure the most confined way from source to objective. The construction is seen offered ward a chance the investigation framework set up by the Hologram cell USB modem. Test results show that this framework has phenomenal sensibility and appropriateness. The robot explores through the briefest way, performs chose errands, and gets back to its source.[8]

RFID based course improvement is in addition unimaginably notable among other course impels. The creator proposed an astute course framework which they masterminded utilizing RFID marks (put on floor), RFID peruser (mounted on robot) and Fuzzy Logic Controller (FLC) (managing the robot) to examine in a dim indoor climate. In this evaluation paper, Authors [5] suggested that by a few changes in the planning of RFID names it is pragmatic to oblige it with any monetarily accessible RFID peruser and this way of thinking is improving the introduction of RFID based course also.

In another paper [6], the customization is proposed on RFID peruser. Here the social event of RFID marks is making the heading for the robot to explore and two recieving wires had been mounted on the robot to analyze the signs coming from RFID names. In here, Authors show that utilizing the RF signal from the RFID names as a fundamental examination signs can be a promising system to explore a helpful robot inside a dull or crude indoor climate. This methodology makes this course advancement especially wise and simple to do on any planning of robots. Both the papers are proposing the improvement in RFID based course development by doing some minor changes in RFID imprints and RFID perusers independently and shows the better showcase of RFID based course.

The capacity of a line following robot is rely on the affirmation of line on floor and this line to be followed should be shift in disguising with the shade of floor. Authors [4] had talked about this ampleness cutoff of line following robot in this paper and additionally broke down the issues they face during organizing a line fan robot. Issue articulation for producer is to perceive and follow the white way drawn on the floor and that white line is encircled by different shadings. To pulverizing from this issue to see the right way Authors recommended that the choice of fitting spot of sensors and their genuine plans may help in developing the benefit of separating the way and follow that considerably more profitably. [9]

Authors proposed the course of action and progress of line devotee robot utilizing IR sensor, utilizing which the robot can examine by following the dull line drawn on the white surface. The rule application behind proposing and organizing of line aficionado is to give distinct driverless stopping.

[7] Authors proposed orchestrating and course methodology for a versatile robot that is utilized in transportation in life science research workplaces. The particular strategy that authors are utilizing depends upon the housetop spots of revenue. This advancement obviously by analyzing the spots of

interest introduced on top of the indoor climate is conceivable utilizing stargazer sensors. Authors propose two explicit plans in this paper:

•Building the guide of multi floor for the advantageous robot. It depends upon the housetop spots of interest and the robot on-board stargazer sensors. To become familiar with the indoor spots of the adaptable robot stargazer sensor analyzes Hex ID that is introduced on housetop as an accomplishment.

•A new technique was in addition prescribed that was utilized to see and comprehend the conditions of the lift. [10]

Result Analysis: This work is on Navigation of the robot. This will develop a wheeled robot that has "Spine based advancement" that aides in changing. So planning of robot is likewise significant. As of late greatest work has been done on Line following robots for indoor climate; the creator had created self-governing route utilizing SLAM based innovation. This examination contrasts the outcomes and line following route and RFID based route. My other outcome is on when utilizing the Gyro sensor. Line ally and RFID based course need change in the environment Line aficionado and RFID-based course need change in the environment by drawing guided ways and remaining RFID names on the floor independently. This may need to shift the indoor directions of activity furthermore, however in free course development for instance Pummel based there is no prerequisite for any change of the indoor climate.[11] The SLAM productivity more than the RFID is 42.6%, with line following the proficiency is 57.14%.

There are very few shortcomings in this proposed system. They are:

•**Light factor:** This endeavour can be performed well in an adequately brilliant environment. This factor serves to examining and separating of the QR codes even more quickly and viably during the development.

•**Collision free way:** When the attender robot is in its course, it can run over various hindrances which may achieve impacts. Along these lines, we are playing out the tasks under obstruction free environment.

•**Static map:** The floor guide of the region where the attender robot should move around is static. The floor map is given as commitment to the kind of an outline.

Conclusion: Steadily we are enduring robots in various territories like air terminal, retail plaza, vehicle organizations; etc like these, there is one more district which is directly connected with public for instance restaurants. China and Japan had successfully introduced serving robots in their restaurants. Nevertheless, there is reliably degree of progress. In this paper we discussed certain issues like course, lift correspondence/room organization, serving on table and balance food on incline floor moreover from the past writing with respect to existing serving robots in China and Japan. In bistros people do come to loosen up and contributed some important energy with their friends and family. With this insight we propose Gyro in our coming robot to counterbalance the plate stacked with delightful food on incline floor and at the hour of serving on table. We proposed likely game plans of each issue to overcome from these.

References:
1.   Ioannis Rekleitis, Jean-Luc Bedwani, and Erick Dupuis, Autonomous Planetary Exploration using LIDAR data, IEEE International Conference on Robotics and Automation Kobe International Conference Center Kobe, Japan, pp 3025-3030. May 12-17, 2009.
2.   FrankHegel,Britta Wrede, Claudia Muhl, MartinaHeelscher fastabend, " Understanding Social robots", Proceedings of the 2nd International Conferences on Advances in Computer-Human Interactions, ACHI 2009
3.   Anucyia Victor, "Restaurant employs £6,000 ROBOTS to replace waiters and save money on staff costs... but don't expect service with a smile", [Online]

http://www.dailymail.co.uk/femail/food/article-2850186/Restaurant-   employs-6-000-ROBOTS-replace-waiters-save-money-staff-costs.html, 2014, November 26

4.   Sk Ebadattulla, Anwesha Kar, Tuhina Alam, Nisha Sarkar (2018). Design and Implementation of Autonomous Line Follower Robot Using Microcontroller. International Journal of Research and Scientific Innovation (IJRSI) | Volume V, Issue XI, November 2018 | ISSN 2321–2705

5.   Badri Narayan Mohapatra, Khan Usama Javed Husain, Rashmita Kumari Mohapatra (2019). Implementation of a Line Follower Robot using Microcontroller. International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-9 Issue-2, December 2019

6.   Mugure, majau agriphina. Design and fabrication of an autonomous line follower robot capable of picking and dropping objects from one point to another. Diss. Kenyatta University, 2019.

7.   Iyer, Riyya Hari, and Jyoti Duchaniya. "Android App Controlled Multi-purpose Robot Using 8051 Microcontroller." Smart Intelligent Computing and Applications. Springer, Singapore, 2020. 301-311.

8.   V, Saraswathi and K, Sneha and Shanthi, Ruby and S, Shyama, Design and Performance Analysis of Line Following Robot (February 14, 2020). Middle East Journal of Applied Science & Technology (MEJAST) 2020, Available at SSRN: https://ssrn.com/abstract=3544729

9.   Schneegans, S., Vorst, P., & Zell, A. (2007). Using RFID Snapshots for Mobile Robot Self- Localization, Proceedings of the 3rd European Conference on Mobile Robots, pp. 241-246, Freiburg, Germany, September 2007.

10.   Vig, L. & Adams, J.A. (2007). Coalition formation: From software agents to robots. Journal of Intelligent and Robotic Systems, Vol. 50, No. 1, pp. 85–118, ISSN: 0921-0296.

11.   Neelima Mishra, Dr. Dinesh Goyal, Dr. Ashish Dutt Sharma, "Issues in Existing Robotic Service in Restaurants and Hotels", 3rd International Conference on Internet of Things and Connected Technologies (ICIoTCT), 2018.