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Preparing Dinner in Kitchen through Octopus and Deliver through Drone

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ABSTRACT

Delivery of food from restaurant to desired address is complicated due to traffic issue so that the customer got the delivery late.The making of food is also complicated due to less number of staff or slow speed.Robotics made it easy to prepare a meal in least number of time with fast speed of delivery through drone.The octopus phenomena with central brain of controller and eight sub brain with arms perform different task of cooking to prepare food fastly.The simulation is doing at the same time to record application for order and cost estimation.The weight,speed and position is well defined by application and transmitter.Soft robotics can also do the task as octopus but the reason of using octopus is that it can handle whole procedure simultaneously.Robotics arms can also be used for making food.

Keywords: *LIGHT SPEED, POS, OCTOPUS CENTRAL BRAIN, RF TRANSMITTER*

INTRODUCTION

The rotation of hand of octopus robotics based on DOF technique in which shoulder,elbow and finger joints has its own rotation of axis and circuits that is connected to brain.Central brain send signal according to programming technique and simulation perform at the same time that how hardware or arms work.Simulation techniques need connection to every sub brain to central brain and every arms to central brain.The feedback is connected to every sub brain that is it the right time to move hand for task.Every hand has its own task that is how one hand is engaged for cooking specific task like blending or frying items to cook food.Another robot manupulate the packing area for a resulting food and pass in a conveyer belt.The box is used for dining serve and without packing to pas to serving robot.Cameras play an important role for cooking to see which arm is activated for given task and then for preventing from clash need a timer of every arm whose movement is fix for a specific time and send signal to central brain then its stop from working condition.GUI also connect with user application for order the food item and octopus robot in kitchen receive and ready for cooking.

Figure 1:working principle of one arm for one task kg

The weight of almost 5 kg can handle from drone with distance of 10 km or more and carry to deliver to registered address with set number of speed.Light speed POS contains list of bill and address for delivery as well as notifications to deliver or not or cash received or not.RF transmitter is used to control drone for delivery.After delivery switch button is press from customer to ensure that they received food and send back to transmitter.Arms is rotating in such a way that when one move then another stops rotating to prevent from clash or mishandle.GUI interface shows the arms connection from simulator that which arm is working at that time.When time complete for cooking same arms is used for cooking the dirty dishes and clean the garbage material from duster.Sensors used at holding position of arms sense the object and then perform action as built in memory to do the task.

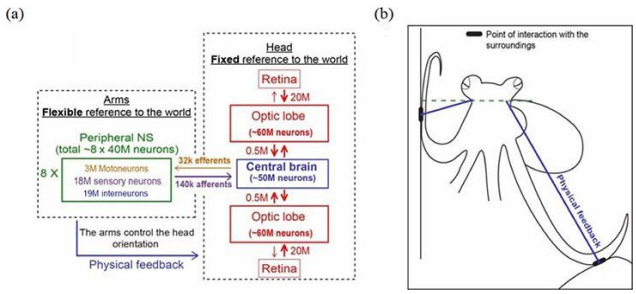

Figure 2:basic head of octopus robot

Receiving Order and Preparing Food

First assemble robotic arms to one central brain for control.This is done by any simulator like motosim or matlab and then interface with hardware design system.Connect rotor of axis or base to multisim body of 6 arms of robotics.In octopus two INC's of opposite arms of octopus bypass is connected together to control the mid one or third one.The arm send the information to brain then brain decide to accept or reject the signal from arms .The simulator decide which arm is link to the brain right now and which one is used to reject or accept.When one arms want to move,it send a signal to brain.At the same time brain have an information of current rotation of brain by feed back link.The brain stop the rotation of that arm for some time and respond to signals of that arm which wants to move.This will done so fastly that all 6 arms looks to move with limited gap.Octopus have eight sub brains in the mid of arms and that is connected to main central brain.To control adjacent arms, we need two different sub brain that is connected to both adjacent arms.Now the whole phenomena depends on the meal which have to made.Each arm have a grip on end to grab any kitchen utensils.

Figure 3:8 arms with 8 sub brain of octopus robot

Scan machine like light speed POS is used received order from application of customer and make a list of amount and send with delivery in drone.One signal send to the central brain of octopus which is working in kitchen.For pizza making,one arm is move to make a flour dough.At the same time another arm cut the chicken and vegetables and then send to container for boil.Third arm will ready to make a sauce with beater and egg.Shelf can stop the button if arms collide or mishandle to stop the whole system.One arm consist of small cups that is used to mix the masala powder.Fifth arm contain spatula for mixing fried chicken and vegetable with sauce.One arm will paste the ingredients to dough and then send to oven for bake and set the temperature.One arm is used to garnishing after food making and ready for packing.One arm is used to packed the delivery in a box and send to conveyer belt.From where receiveing robot passed to drone and set the time of fly and speed and transmitter controller control to send the delivery to required address. Each arm is used to do one work with multiple pieces.The vegetables can also be cutting by another robot from farming area and collect it for cooking and send to kitchen.The whole robotic system made it easy for cook in kitchen.

Figure 4:picking vegetables from farming area

PACKING AND PASSING FOR DELIVERY

The on earm is used for fix the plate one robot send the packed meal by fixing box with gum or tape tightly or with punching machine and send to conveyer belt after receiving from first robot that made a meal in kitchen.After receiving move with fix degree of rotation from its axis with weight of food and fix in the machine.At the end of conveyer human fix the slip of price of list that was prepared by scan machine and send to the drone for delivery.The simulation do the work for same and monitor and manage speed and timing for the whole task.The ingredients cabinet are well integrated and other arms are also used like cabinet to deliver itemsfor cooking meal.The GUI interface is used for instruction that how many grams of onion or ingredients is used for meal and directed to robot.The sensors and gribs are used for cooking and move.Three dimensional space moving octopus to move freely overall in kitchen.

Figure 5:ready for packing and delivery

Delivery By Drone

The delivery from drone is most convenient to deliver with low weight and cost food.The dron of low speed and angle of rotation forward to delivery up to least distance.Research show that up to 5 to 6 kg can manage by drone to handle with 10 km with maximum half hour rate process.The fast food normally low in weight and price .The customer order from mobile application to deliver the food.After reaching desired area drone throwing the food in ground with low distance or landoff in ground to pick from customer.The customer pick and also send cash from drone or from app.The drone can also contain container in which food is safely reached or hanging in the bottom area but most suitable and prevention is that drone contain container to save the food taste and frshness.

Figure 6:packed food deliver at home of customer

Interfacing Platform

The interfacing platform consist of parallel integrated system of robot arms,packet of food by deliver by drone and simulation scanning machine.The scanning machine consist of four part that is receiving order from application in mobile or android,send message to robot central brain in kitchen,receiving message from octopus robot in kitchen after preparing food,make a list of cost for cash on delivery and receive message from drone.The transmitter and receiver used for this purpose is consider.The main transmitter and receiver in central brain that is connect to sub brain of arms of octopus robot,scanning machine and drone are sending continuous information after sensing from touching sensors in ipad face putting in front

of machine and drone.The central brain is connected to sub brain will do frequent movement of arms for first position arm that is situated in simulation design.After responding from first arm and busy in work,the central brain send message to second arm for working or task.In the same way all arms busy in working step by step and perform their desired task.Arms circuit is designed in such a way that position is sufficiently describe inside it that where to go step by step for it task to complete.When position is specified to each arms and it reached there ,the grabbers used it sensors to sens required equipment for cooking which is place in that position already in a cabinet or fridge.Then it pick up from there and go to another step for which specified distance is programmed in it.After reaching there ir found that thing already and sens and grab it and start cooking with programmable time period.Like this all arms do the same.After completing steps of cooking by all arms,it combine in one platform to finalize the cooking of meal.Another robot there grab that item and pas to box for packing,packing done through machine and signal to scanning machine.Scanning machine will make a list and tag to box.After tagging packing is passsing to drone then scanning machine start drone to fly at delivery position by sending message through transmitter.Set the time speed and weight is required by simulation software that is connected to scanning machine and monitor all steps and data.After fly over drone have to manage in a continuous manner that it can not mishap any trouble or loss it balance due to weight ups and down and control the speed and position or turn off direction.After reached at desired area dron start to landing in a ground area and customer receive signal from application in mobile.Customer received a parcel and press the swith in drone for confirmation or deliver a cash then drone packed with window and go to its destiny.Returning position is also controlled through scanning machine and manage speed,weight and rotation of position.When reaching back to its destiny drone land off and indicates a beep.Battery design is constructed in such a way that covering distance is not fix with this battery or charge but more than it sme how.This battery will charge again for next delivery and set the timer too.

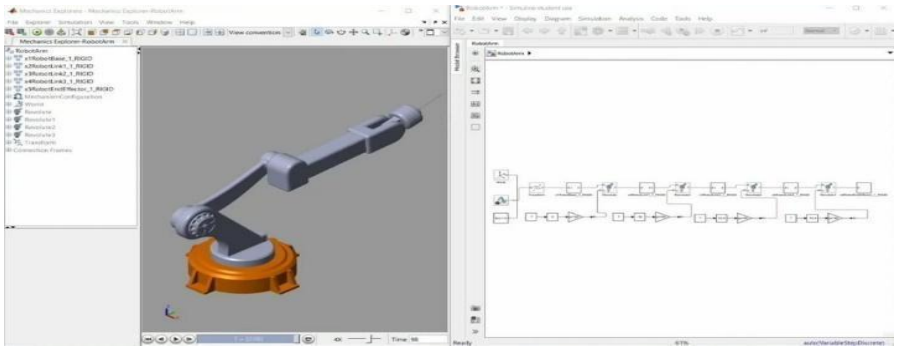

Figure 7:matlab simulation and interfacing arms

Current Research

The Robot Operating System (ROS) is a set of software libraries and tools used to build robotic systems and applications. The current long term service version of ROS is ROS Noetic. It is the 13th and latest distribution release of Robot Operating System (ROS1). It was released on May 23, 2020 by Open Robotics, the developer of ROS. It will be supported for 5 years until May 2025. In the future, all the official effort will be put into developing ROS 2, which is a major rewrite of the ROS framework.

ROS Noetic is mainly developed for Ubuntu 20.04, so Ubuntu is the recommended Linux OS for installation. This tutorial explains how to install ROS Noetic from source on the Raspberry Pi OS and how to connect your LiDAR to Raspberry Pi 4 Model B using ROS Noetic middleware. It's not hard, but it will take a long time to compile everything.

In the future study is going to try to investigate the use of GPS technology for stream travel time estimation under Turkey traffic conditions. In this case, some comparable or differences can be found between two technologies such as Bluetooth and GPS. After all, companies like Waze, TomTom, and Google are already able to provide city and country level traffic condition using GPS and other sources of data. For this reason, comparison is made among all technologies for travel time estimation under different conditions.

Today, the LabVIEW platform offers a flexible, fast, easy-to-learn, and complete image analysis infrastructure with various useful modules. For this reason, in this study, a method analysis for color perception with a simple USB webcam and software developed for real-time color analysis on the LabVIEW platform is presented and its success in the basic color analysis is tried to be revealed. The basic application developed for this purpose in LabVIEW v2019 using NI Vision Development Module v19 and NI IMAQ v19 modules.

CONCLUSION

The above research provide theme of time balance when googles and haptic gloves move in sequence.Moreover weight and speed will be monitor simultaneously.The theme of research provide the latest research on googles and haptic gloves control in a sequence manner.

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