THUSHHAARA
A Subsidiary of Thushhaara group of company

INTERNSHIP OFFER

REF	:	THU-UAE-1001
DATE	:	06/01/2020
VALID	:	90 Days

To
Mervyn Medidi
4th Year BTech Mechatronics
MIT Manipal.

Subject : Appointment letter for Internship.

Company Name : THUSHHAARA manufacturing Pvt Ltd, Kerala,India.
THUSHHAARA Technical Servicec LLC, Dubai, UAE.

Period of internship
January 6th to June end (6 months)
Work location
Manipal, Karnataka / Kasaragod, Kerala

About Us :

Thushaara a company having its base in India and Head quarters in UAE, is in the field of manufacturing airconditions in India. We are venturing into manufacturing various other products. We presently developing automatic industrial cleaning machine which will have an ability to remotely controlled. Further more we would like to incorporate AI in the automation process to minimize the need of any human intervention.

Main problem statement

The cleaning industry as it stands today is a laborious industry or process. As the education system is progressing, there will be lesser people available for the job. That's why the company strives to encash on this opportunity by empowering the existing cleaning machine with a remote controlled robot.
The present day manual cleaning is an age old tried and true design which is great, but still requires manual operation which makes it a gruesome labor intensive industry. Our aim with this project is to take the existing design, update it with the latest developments in technology and then fully automate it to be remotely controlled. This not only makes the process more efficient for everyone, but also reduces cost through the entire work sphere.

It is estimated that the average cleaning company loses up to 55% of their customer base every year due to poor service. As one business owner states – good work goes unnoticed for years, but a bad job gets you fired immediately. But with this automated robot, the chances of this happening is effectively.

Barriers to entry in this industry are low as there is very little expensive equipment needed and little to no training required for employees which can pose both a security threat and inefficient work ethic. Our company deems to end this and bring in a new respect for the cleaning/ hygiene industry with this robot.

The new industry hot topic is Green cleaning which is "a marketplace phenomenon that is being driven by customer demand and the overall trending of the broad marketplace for environmentally preferable products and services." Both home and business owners are increasingly conscious of the chemicals used in their space, and cleaning services that focus on non-toxic supplies and processes have been gaining in popularity. With this robot, the development is a solar power future and use of detergents and machines that are less environmentally harmful and that will save the planet

Student Contribution

The role of the primary engineer involved in taking the rudimentary design of a manual building cleaning machine and automating it to be remotely controlled and to research and develop additional attachments to perform other tasks. The student will have to use his coding ability to make the given project remotely controlled and electronics and mechanical knowledge for the design of the further design and development of the machine.
The student will be asked to research the technology required for the above project along with the physical building of the machine with inputs and suggestions given by higher ups in the company.
The student will have to produce results on a monthly basis and reports will have to be generated by the student and sent to show progress made in the project.

We would be show casing this product in UAE during the world 2020 expo under make in India project.
We look forward to have you in our R&D division. We would be adding more people to the team as the project progresses.

Regards
For Thushhaara Manufacturing Pvt Ltd.,

Ajesh Babu
Managing Director

Kindly acknowledge the acceptance of this letter duly signed and return a scanned copy :

Signature

Mervyn Medidi

Agenda for the building of the robot

1. Selection of the machine to work on
2. Selection of the correct sensors (ultrasonic) and number required to perform both autonomous navigation and remote control operation
3. Selection of method to remotely control the vehicle
4. Battery selection to take care of energy needs
5. Selection of 4 camera modules for all four directions and other tiny cameras for around the periphery of the robot
6. Additional components to be added to increase the efficiency of cleaning and to tackle corners and other crevices
7. Selection of the right motors to be able to take the load
8. Creation of tiny robots or an arm to reach the places that can't be reached by the main robot (undecided)
9. Selection or finding of the right robotic arm for the process

Timeline

January

1. Research involving the selection of the cleaning machine required for the primary operation of cleaning

    - Checking online portals and contacting suppliers
    - Obtaining catalogues and offers by suppliers
    - Obtaining the cad files of the machine
    - Finalising the supplier and product

2. Researching the method for the remote control of the vehicle

    - To check the microprocessors or controllers or other tools required
    - To find and produce the code needed for the above operation of moving the robot from one location to the next remotely
    - Finalising the method of moving forward with the rest of the project based on findings here

February

1. Selection of the motors, sensors, cameras and other accessories required of the project based on efficiency, cost and the requirements of the project.
2. Selection of the battery needed for the operation
    - Checking for battery solutions on the market and finalising on the batteries need
    - Research on solar energy and possibility of making the project solar powered

March

1. Buying of all the components and building the framework of the project.
2. Completion of the wiring of the various components

April

CONTINUATION OF MARCH

May

1. Buying the actual machine which will be transported to the location and all the materials needed for the project.
2. Adding the additional components to the machine

June

CONTINUATION OF MAY AND FINISHING OF THE PROJECT

July

Research for addition of additional features to be added to the project

August

Submitting the project.