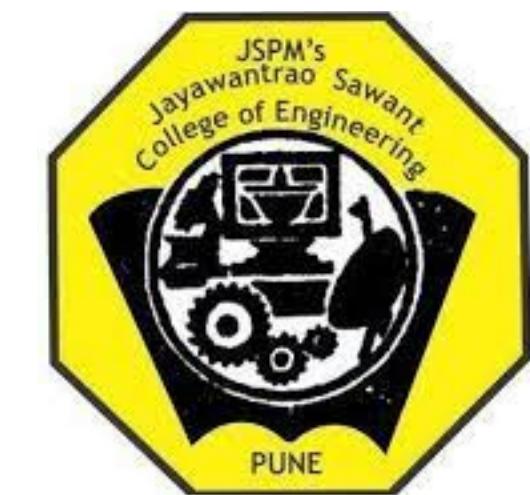


**JSPM'S
JAWAYANTRAO SAWANT COLLEGE OF ENGINEERING
HADAPSAR, PUNE-28**



**DEPARTMENT OF COMPUTER ENGINEERING
THIRD YEAR (A.Y. 2021 - 2022)**

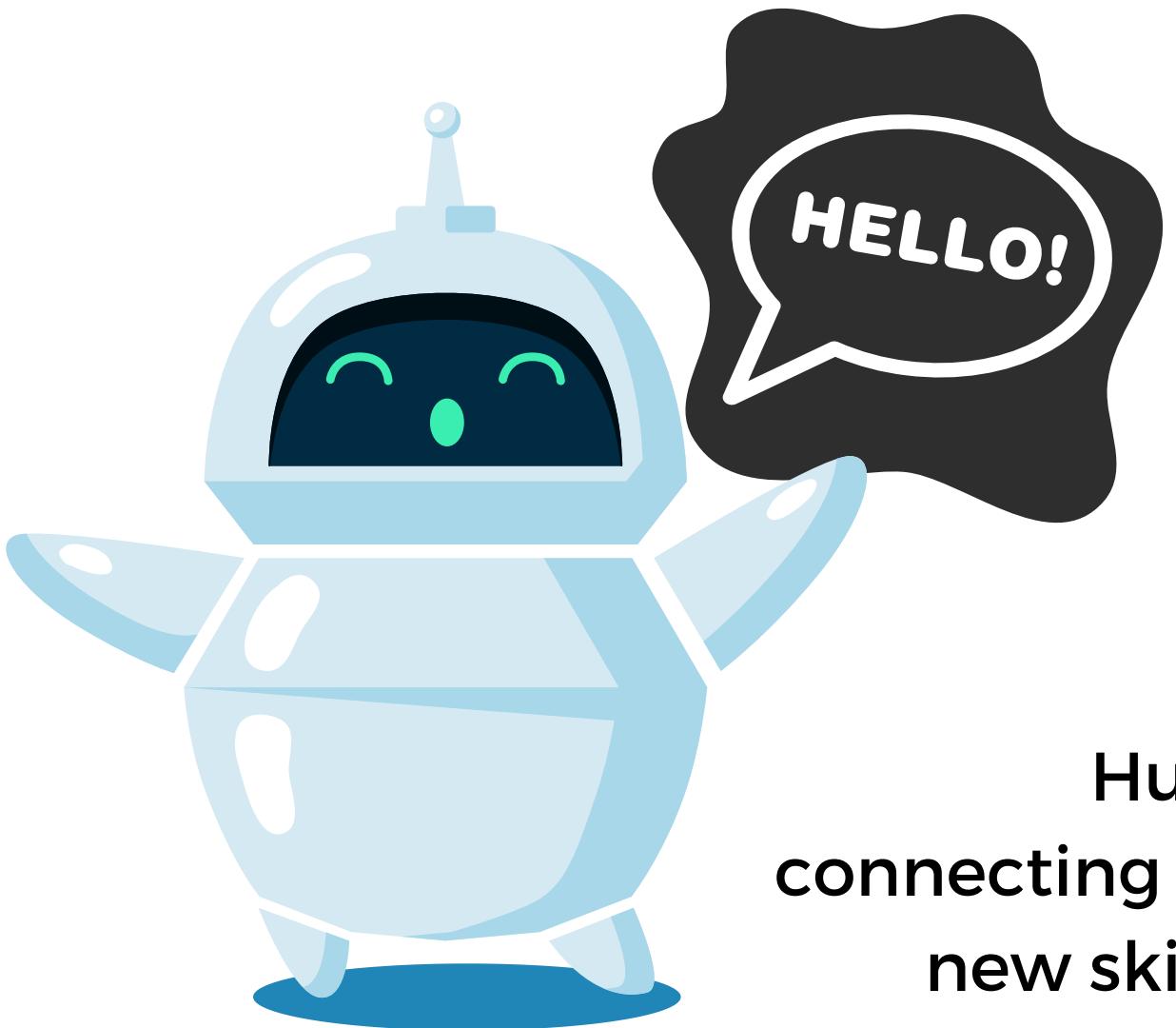


310255: INTERNSHIP

Name: Aditya Malapure
Roll no: 3164
T.E. A Computer Dept,
JSPM's JS COE

INTERNSHIP DOMAIN

ROBOTICS Software Intern



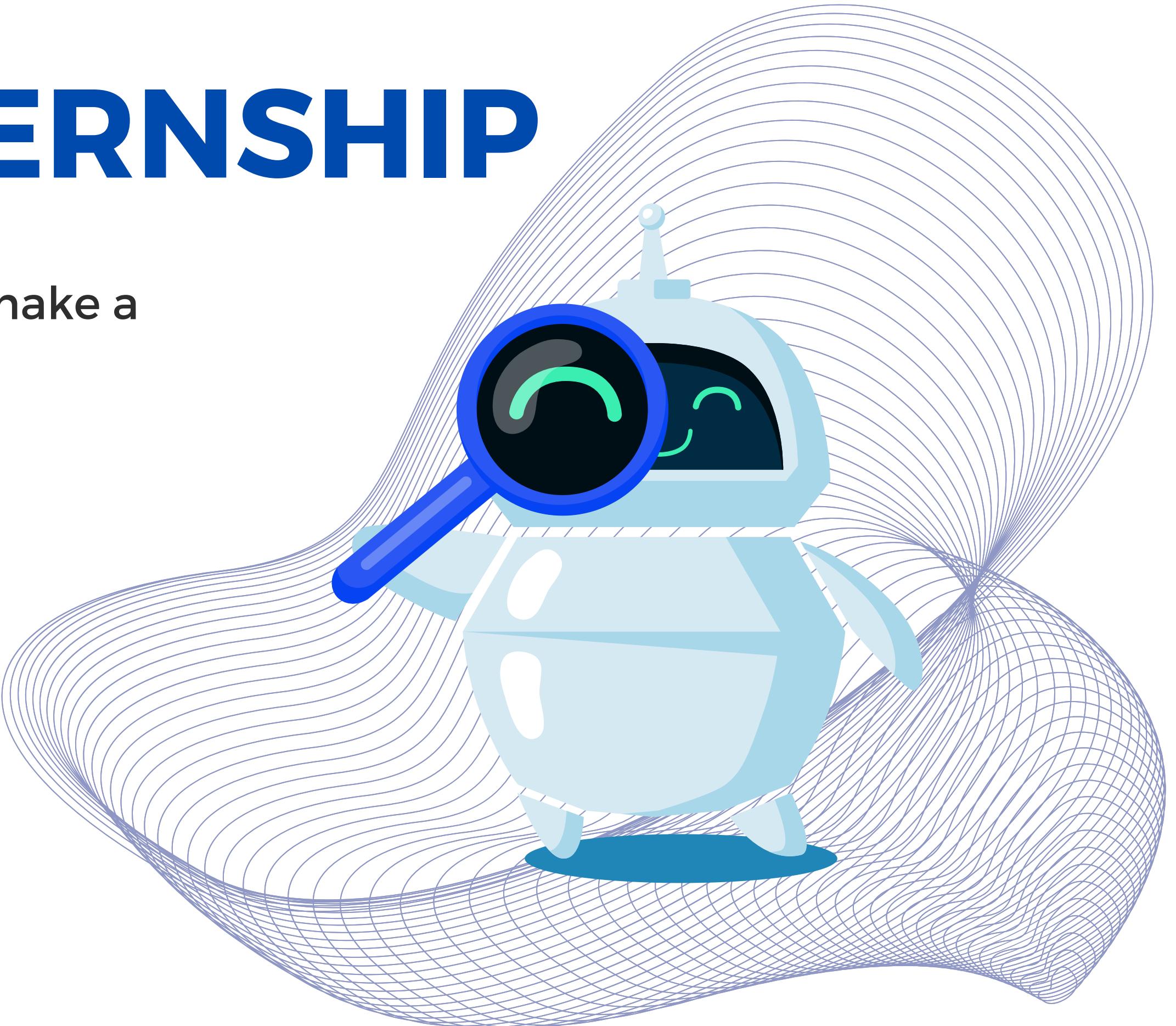
HunarPro
skilling

HunarPro is the world's first social-commerce platform connecting students to showcase their Hunar globally and learn new skills with needed resources in one place through their website and mobile application.

ABOUT INTERNSHIP

The aim of the internship is to make a Defense Robot which

- can carry a weight of 100kg
- can run of any surface
- can be controlled remotely



DOMAINS included



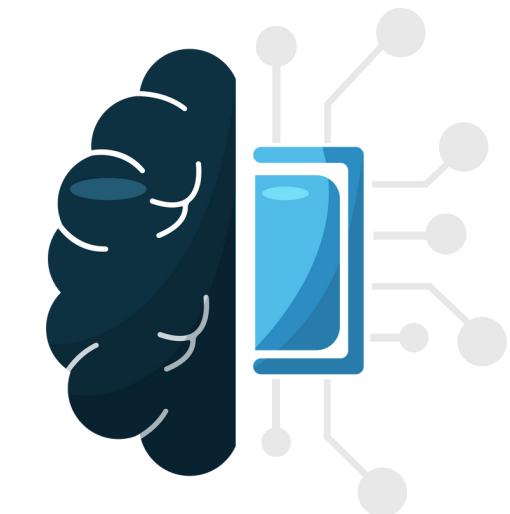
Mechanical

Includes material selection, chassis design, software design



Computer

Includes ubuntu 20.04, ROS 1, coding in python, simulation

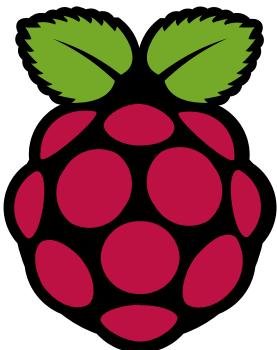


Electronics

Includes hardware selection embedded system, PCB design,

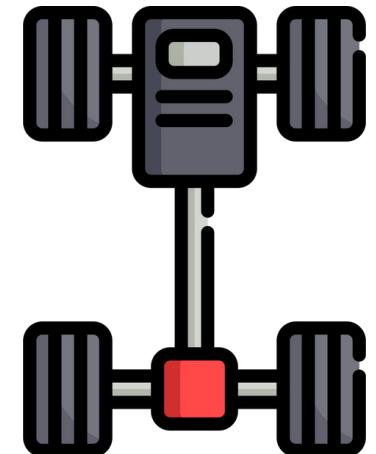
Multiple domains come together to build a robot that can carry a load and travel efficiently on any surface

HARDWARE involved



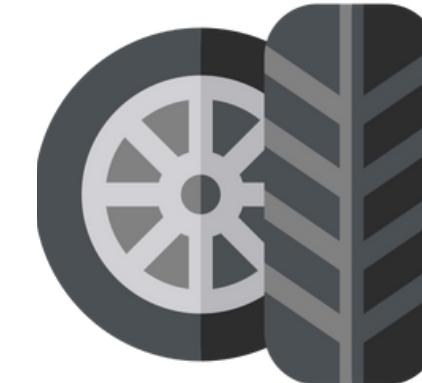
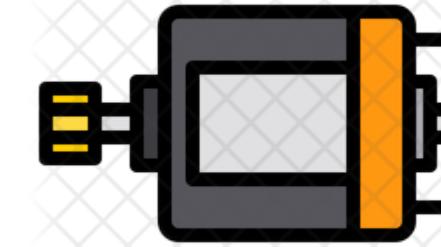
Raspberry Pi 4

Arduino UNO



Chassis

DC Motor

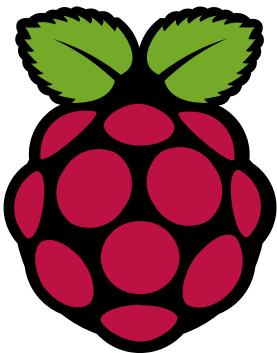


Rubber Wheels

Battery



SOFTWARE involved



Raspbian OS

Arduino IDE



Ubuntu 20.04
OS

ROS with
python



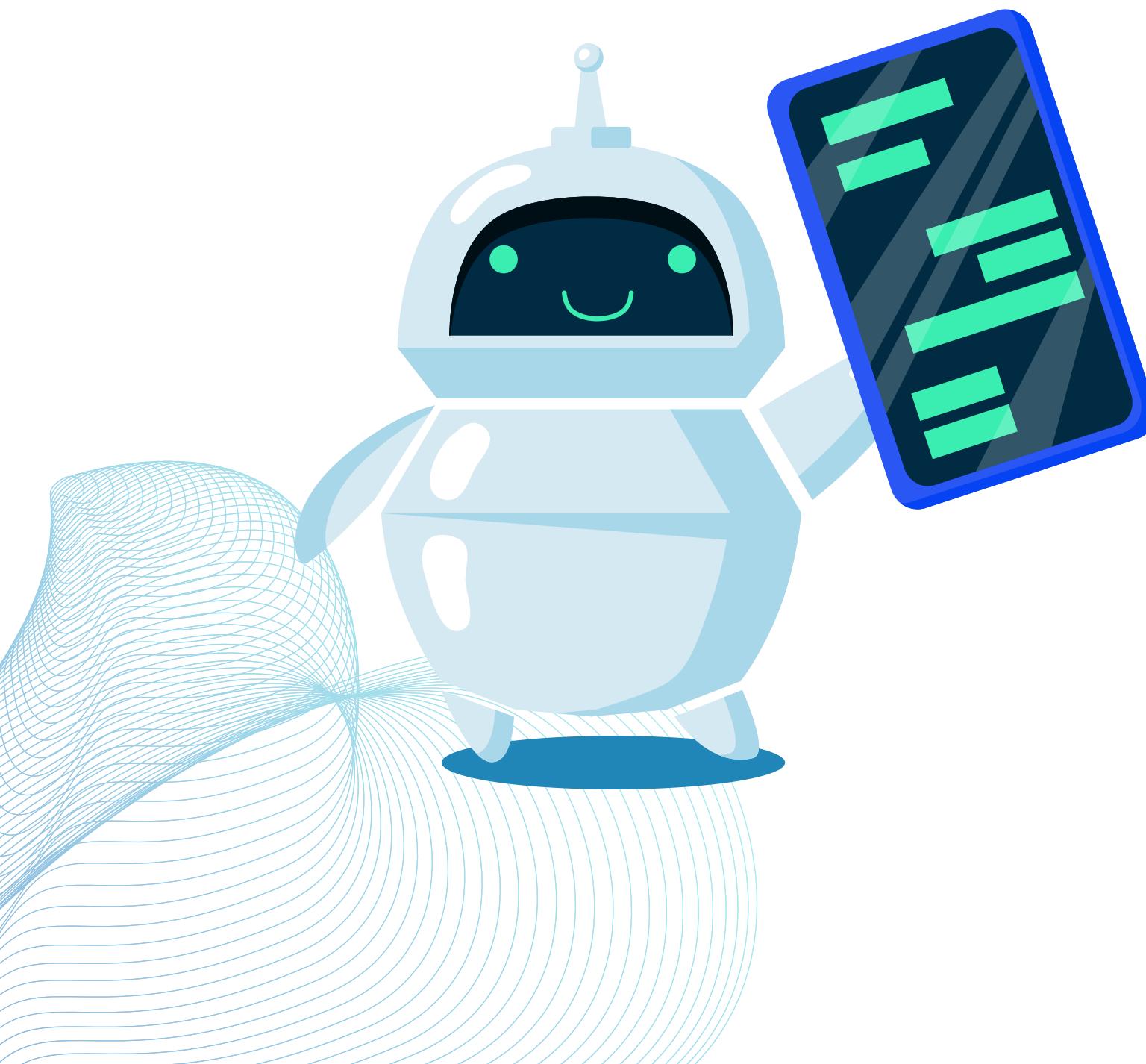
Gazebo

Fritzing



WORKDONE

in Internship



FEB

MAR

APRIL

MAY

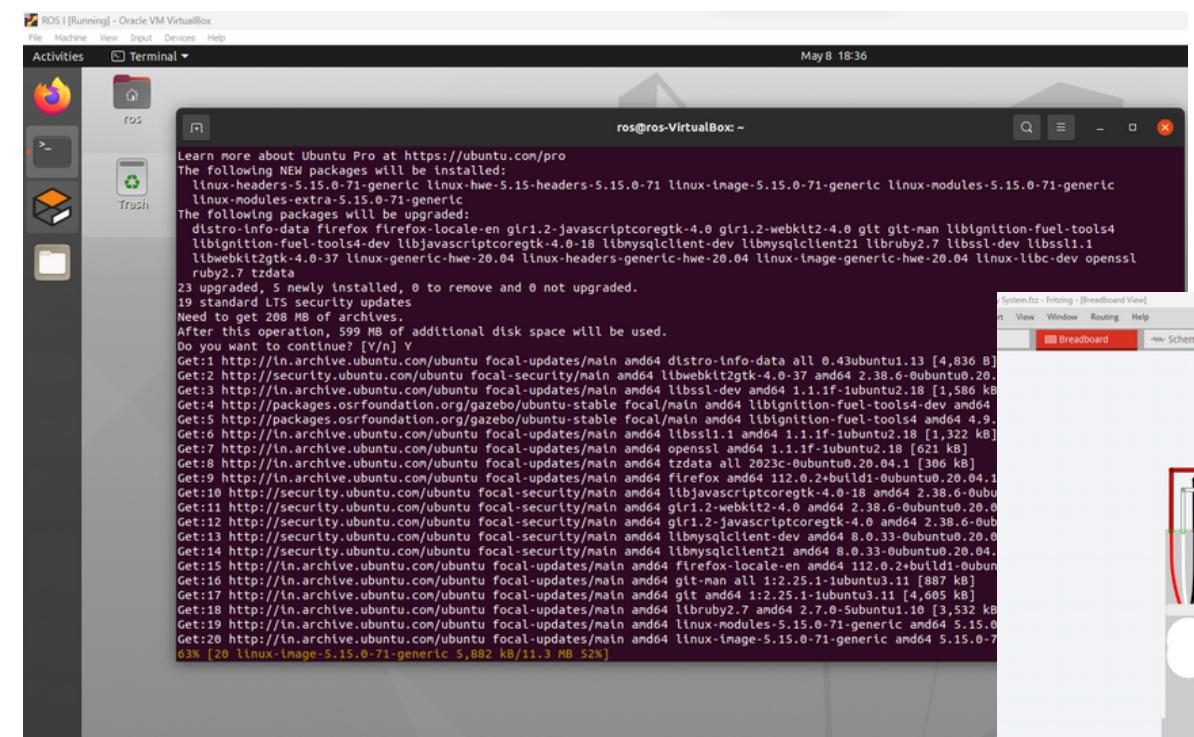
Selection of Material required for the Robot body. It include the size and the weight of the robot that is to be carried and the the surface it will run on.

Make design on software like fusion, this include chassis, wheels, motors, sensor and other components next the design is send for fabrication and 3D design.

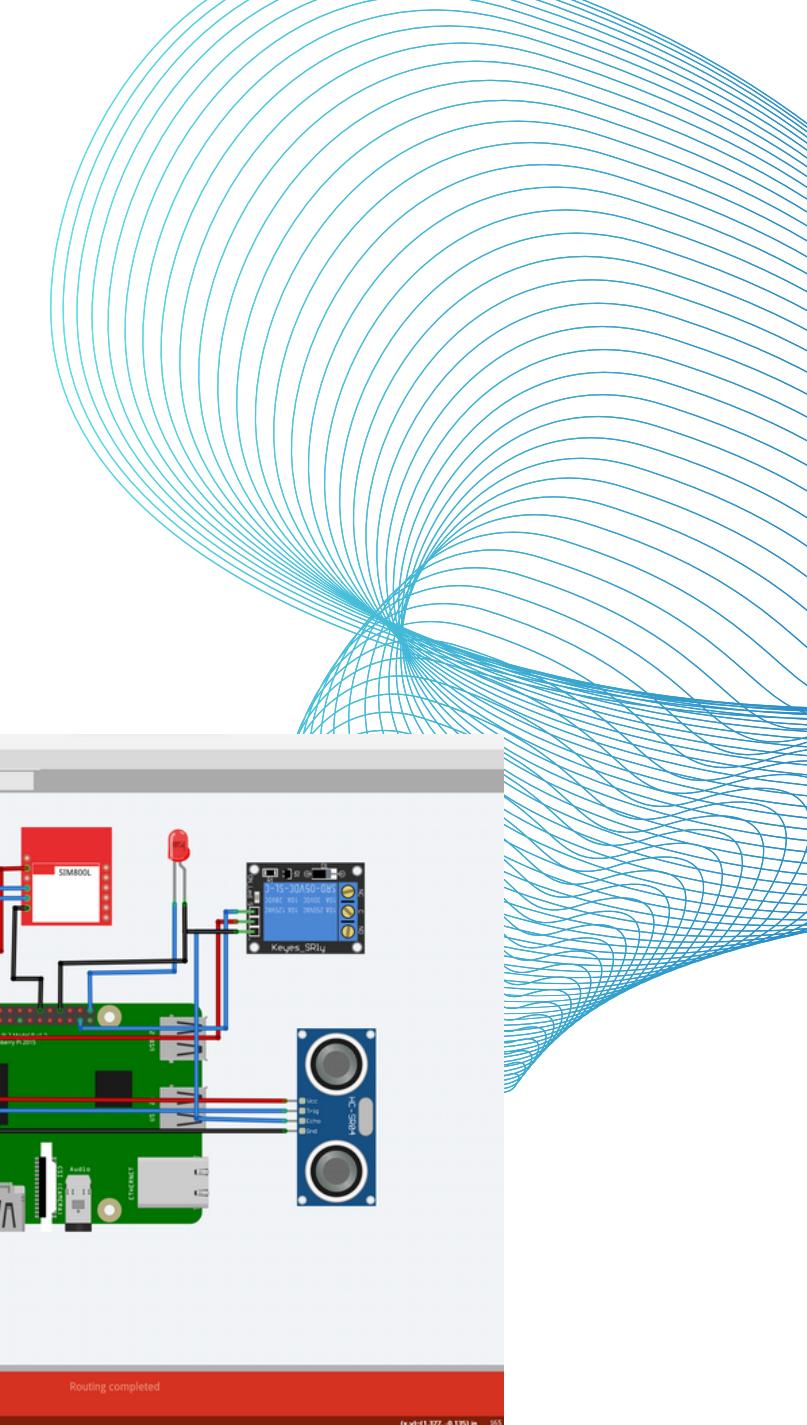
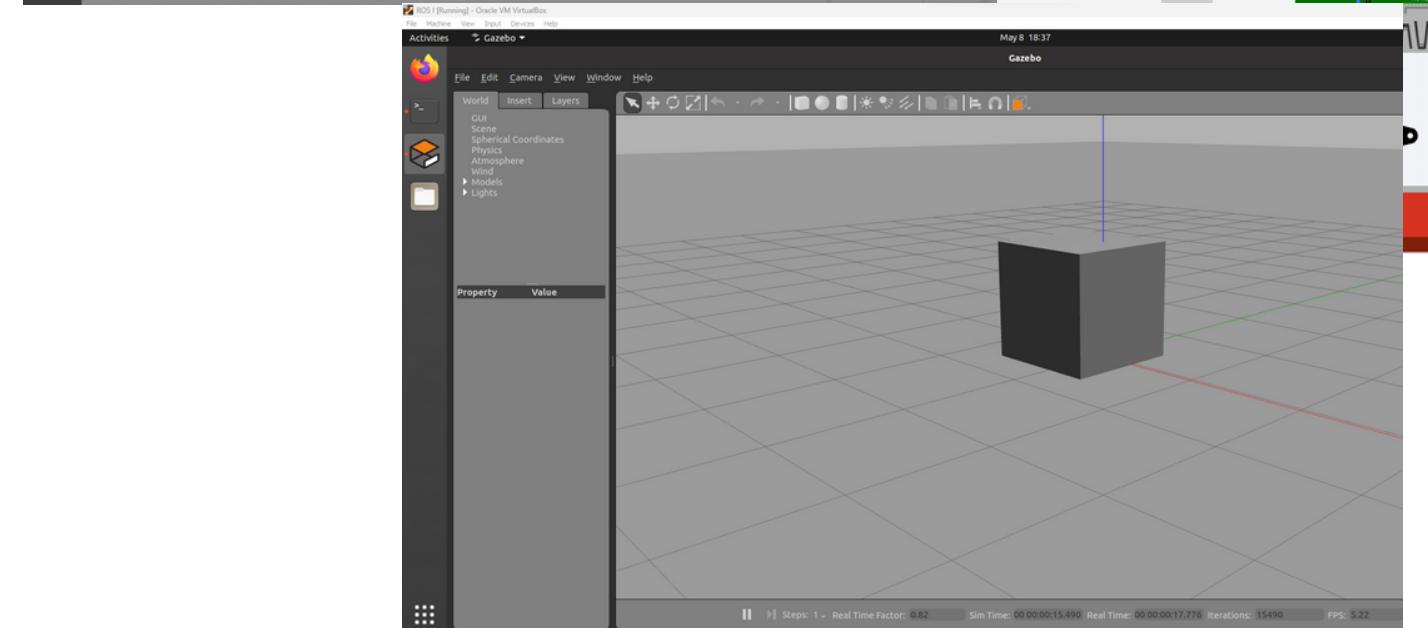
Assembly stage here all the mechanical parts are assembly and all in one PCB is designed for assembly of all sensors and material durability is tested.

Based on the design of the robot, develop software that controls its movements, enables the robot to sense and navigate various surfaces. Final test.

GLIMPS of Project



```
ROS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal ros@ros-VirtualBox: ~
May 8 18:36
Learn more about Ubuntu Pro at https://ubuntu.com/pro
The following NEW packages will be installed:
  linux-headers-5.15.0-71-generic linux-image-5.15.0-71-generic linux-modules-5.15.0-71-generic
  linux-modules-extra-5.15.0-71-generic
The following packages will be upgraded:
  distro-info-data firefox firefox-locale-en gir1.2-javascriptcoregtk-4.0 gir1.2-webkit2-4.0 git git-man liblignition-fuel-tools
  liblignition-fuel-tools4-dev libjavascripcoregtk-4.0-18 libmysqlclient-dev libmysqlclient21 libruby2.7 libssl-dev libssl1.1
  libwebkit2gtk-4.0-37 linux-generic-hwe-20.04 linux-headers-generic-hwe-20.04 linux-image-generic-hwe-20.04 linux-linc-dev openssl
  ruby2.7 tzdata
23 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
19 standard LTS security updates
Need to get 208 MB of additional disk space.
After this operation, 599 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 distro-info-data all 0.43ubuntu1.13 [4,836 B]
Get:2 http://security.ubuntu.com/ubuntu focal-security/main amd64 libwebkit2gtk-4.0-37 amd64 2.38.6-0ubuntu0.20.
Get:3 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 libssl-dev amd64 1.1.1f-1ubuntu2.18 [1,586 kB]
Get:4 http://packages.osrfoundation.org/gazebo/ubuntu-stable focal/main amd64 liblignition-fuel-tools4-dev amd64
Get:5 http://packages.osrfoundation.org/gazebo/ubuntu-stable focal/main amd64 liblignition-fuel-tools4 amd64 4.9.
Get:6 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 libssl1.1 amd64 1.1.1f-1ubuntu2.18 [1,322 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssl amd64 1.1.1f-1ubuntu2.18 [621 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 stdc++6 amd64 8.3.0-1ubuntu1.1 [1,151 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 firefox-locale-en amd64 112.0.2+build1-0ubuntu0.20.04.1
Get:10 http://security.ubuntu.com/ubuntu focal-security/main amd64 libjavascripcoregtk-4.0-18 amd64 2.38.6-0ubuntu0.20.0
Get:11 http://security.ubuntu.com/ubuntu focal-security/main amd64 gir1.2-webkit2-4.0 amd64 2.38.6-0ubuntu0.20.0
Get:12 http://security.ubuntu.com/ubuntu focal-security/main amd64 gir1.2-javascriptcoregtk-4.0-18 amd64 2.38.6-0ubuntu0.20.0
Get:13 http://security.ubuntu.com/ubuntu focal-security/main amd64 libmysqlclient-dev amd64 8.0.33-0ubuntu0.20.04.
Get:14 http://security.ubuntu.com/ubuntu focal-security/main amd64 libmysqlclient21 amd64 8.0.33-0ubuntu0.20.04.
Get:15 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 firefox-locale-en amd64 112.0.2+build1-0ubuntu0.20.04.1
Get:16 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 git-man all 1:2.25.1-1ubuntu3.11 [887 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 git amd64 1:2.25.1-1ubuntu3.11 [4,005 kB]
Get:18 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 libruby2.7 amd64 2.7.0-1ubuntu1.10 [3,532 kB]
Get:19 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 linux-modules-5.15.0-71-generic amd64 5.15.0-71-generic
Get:20 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 linux-image-5.15.0-71-generic amd64 5.15.0-71-generic
63M [20 linux-image-5.15.0-71-generic 5,082 kB/11.3 MB 5%]
```



CONCLUSION

My internship was a valuable experience that helped me develop my skills and knowledge in the field of Robotics. I had the opportunity to work on key projects, develop important skills, and learn valuable lessons. I am grateful for the experience and look forward to applying what I learned in my future career.



01 January 2023

Offer Letter

Dear Aditya Malapure,

On behalf of HunarPro Skilling Hub Pvt. Ltd., I am excited to extend an offer to you for an internship position. This position is located in Pune. The position is for a Robotics Software Intern.

This position is scheduled to begin on 01 February 2023 and will be a four months internship opportunity ending on 01 June 2023. The schedule for this position is a part-time internship. In this role, you will report directly to Mr. Akshay Kelkar.

During your temporary employment with HunarPro Skilling Hub, you may have access to trade secrets and confidential or proprietary business information belonging to the HunarPro Skilling Hub. By accepting this offer, you acknowledge that this information must remain confidential and agree to refrain from using it for your own purposes or disclosing it to anyone outside of the company. Also, you agree that upon completion of your internship, you will promptly return any company-issued property and equipment along with information and documents belonging to the company. By accepting this offer, you acknowledge that you understand participation in this program is not an offer of employment, and successful completion of the program does not entitle you to an employment offer from HunarPro Skilling Hub.

This offer letter represents the full extent of the internship offer and supersedes any prior conversations about the position. Changes to this agreement may only be made in writing. If you have any questions about this offer, please contact Mr. Akshay Kelkar, Centre Manager, at +91 84592 87983. Please review this letter in full, and sign and return it to confirm your acceptance of the position no later than the close of business on 06 January 2023. We look forward to having you begin your career at HunarPro Skilling Hub and wish you a successful internship. Welcome to our team!

Sincerely,



Mr. Akshay Kelkar

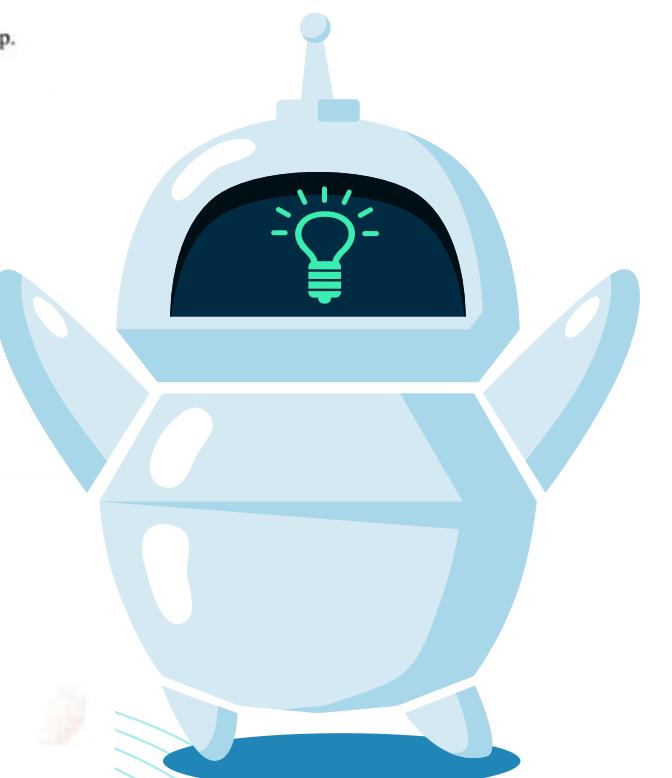
Centre Manager, HunarPro

I, Aditya Malapure, accept the above offer and will begin the internship position on 01 February 2023.

Mr. Aditya Malapure

HunarPro Skilling Hub Pvt Ltd
CIN: U80900PN2019PTC181771
Registered Address: 1732, Sadashiv Peth Vishnu Apartment, Pune MH 411030

Scanned with CamScanner



**"ROBOTICS
is a positive force that can unlock
Human Potential"**

-Rob Nail

THANK YOU !

