Karnatak Law Society’s

GOGTE INSTITUTE OF TECHNOLOGY

Udyambag Belagavi -590008

Karnataka, India.



A Course Project Synopsis on

**Omnidirectional robot**

Submitted for the requirements of 4rd semester B.E. in CSE

for “**PYTHON PROGRAMMING (18CSL46)”**

***Submitted by***

| **NAME** | **USN** |
| --- | --- |
| **SHIVANI BANKE** | **2GI20CS140** |
| **Srushti B Mudennavar** | **2GI20CS158** |
| **Shradha Mallikarjun Patil** | **2GI20CS144** |
| **YASH HEREKAR** | **2GI20CS184** |

**Under the guidance of**

**Dr. Manjula Ramannavar**

**Asst. Prof., Dept. of CSE**

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# ABSTRACT

* Python program to manually control an omnidirectional robot, using a python GUI

# Objectives

* To program raspberry pi pico using micro-python.
* To design and implement a GUI application using any popular python framework and establish communication between the robot and the application.

# Applications

* Industrial applications - single task robots. Pick and place, etc
* Military applications - autonomous unmanned vehicles.
* Space exploration - Curiosity rover on Mars, navigates the terrain on mars and sends feedback back to earth.
* Healthcare - The da Vinci Surgical Robot, performs surgeries.

# Scope

* With the recent advancements in artificial intelligence and machine learning, there is a tremendous scope for robotics in the future.
* Big companies like Boston dynamics are heavily invested in hiring engineers who can solve problems using robotics

# Advantages

* Programming in python helps us in ease of implementation as the syntax is very easy to understand.
* Python has so much legacy software available to users that one can find supporting libraries for his project. Therefore he/she can build upon the project instead or scratch coding the whole thing.
* Python virtual machine enables us to program without worrying about memory management issues.

# Limitations

* Due to the overhead and dependancies the code compilation is slower.
* Takes a lot of space on a single board computer such as the raspberry pi pico as it has to run a virtual machine to run the code

# Conclusion

* Programming in python for a basic robot is an overkill however if AI and ML are to be implemented then it becomes crucial.