

Project Approval form

Title of Project: - **Activity Recognition based on Gyroscope and Accelerometer analysis.**

Name of Team leader: - **Himank Jerolia**

Details of group:-

<u>S.no.</u>	<u>Roll no.</u>	<u>Name</u>	<u>Mobile no.</u>	<u>Email-id</u>
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Project summary: -

This project is based on Machine Learning using Python. This project will help us determine the activity of a person, whether the person was sitting, standing, running etc., at some point of time. The model will analyse a set of data that consist of data of gyroscope and accelerometer running on a smartphone based on Android OS and a Smart Watch based on Android Wear OS. The activities that will be analysed are running, walking, jogging, sitting etc. A graphical representation will be done to clearly depict the accuracy of the model and the graphs will also help us to see and analyse results more efficiently. 3 basic packages that will be used to build this model are: Pandas, Numpy and Matplotlib. Other important packages that will be required to build the model are Tensorflow and its sub packages and sklearn. The functionalities of all these packages are discussed below in detail.

Project Modules with Functionalities: -

<u>S.no.</u>	<u>Name of Module</u>	<u>Functionality of module</u>
1.	Pandas	To work with data frames after synthesising the given dataset.
2.	Numpy	To work with arrays.
3.	Matplotlib	To plot various representations such as Confusion Matrix and Learning Curve
4.	sklearn	To split testing data from training data and also convert string into categorical variable.
5.	Tensorflow	Its subpackages (Conv2d, MaxPool2D, Flatten, Dense, Dropout, Adam) will help us build 2D CNN Model which will help in training the model on given dataset.

Project Hardware and Software Requirements: -

Hardware (Minimum specs):

- Memory and disk space required per user: 1GB RAM + 1GB of disk + .5 CPU core.
- Server overhead: 2-4GB or 10% system overhead (whatever is larger), .5 CPU cores, 10GB disk space.
- Port requirements: Port 8000 plus 5 unique, random ports per notebook.

Software (Front and Back End):

- Jupyter Notebook
- Python (Version 3.0 or higher)
- Annaconda Navigator and prompt
- Spyder IDE
- Pycharm IDE

Proposed Project Guide Name:- Mr. Rupesh Kumar Mishra

Name of team leader:- Himank Jerolia

Signature:

