

To,
IITD-AIA Foundation of Smart Manufacturing

Subject: **Weekly Progress Report for Week 0**

Dear Sir,

Following is the weekly progress report dating from 1st to 4th of June, 2023. I went ahead and researched on the relevant topics explained to us during the orientation dated 1st June 2023.

My Understanding of the Project: INTP23-ML-5: Equipment Failure Prediction for Predictive Maintenance

Predictive Maintenance is the procedure of using already existing data of various factors which might cause equipment failure and using those data available to us to predict when an equipment might fail in the future. It basically works on the principle of Condition Monitoring. Condition-monitoring tools combined with artificial intelligence and machine learning techniques forecast expected machine failure.

Predictive maintenance helps in:

- reducing maintenance costs
- maintenance scheduling and planning
- improving reliability.

With the help of such technologies, we can predict and perform maintenance activities without disrupting normal machine activities,

Weekly Progress:

1st June 2023:

Understanding OpenCV and its usage.

- Went through the project topics showcased to us during the orientation.
- Understanding what is OpenCV since a lot of the projects required OpenCV as one of their main components.

2nd June 2023:

Went through various resources and YouTube channels regarding OpenCV.

- Explored Murtaza Workshop: a YouTube channel exploring OpenCV and its various possibilities and applications.
(<https://www.youtube.com/channel/UCYUjYU5FveRAscQ8V21w81A>)
- Went through basic palm and object tracking through computer webcam.
- Went through basic image processing via YouTube channels.

3rd June 2023:

I went through FreeCodeCamp's Advanced Computer Vision course.

(https://www.youtube.com/watch?v=01sAkU_NvOY)

- Explored the use of Mediapipe module
- Learning how to generate face mesh for face tracking.
- Went through selected topics which were posing some issues to me.

4th June 2023:

Explored the usage of Numpy and Pandas.

- Initially I faced difficulty in Numpy and Pandas however, after going through the video's multiple times, I am finally getting the hang of it with time. I am still not very good at it but will keep practicing.

