

**Post Graduate Diploma in Big Data Analytics (PG-DBDA)**

**March 2023 Batch**

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| **Group Number** | Group – 1 |
| **Guide** | Dr. Priyanka Jain |
| **Group Members** | 1.Monica Jha  2.Lokesh Sali  3.Shivani Phuke |
| **Title** | **Real Time Camera-Based Adaptive Breath Analyser System** |
| **Objective** | The objective of the project is to determine the respiration rate of a person, so that :   1. Non-intrusively and continuously monitor the breathing rate of a subject. 2. Classify different types of breathing patterns. 3. Monitor changes in breathing rate over time. 4. Measure the level of stress or anxiety in a subject. |
| **Abstract** | Breathing is one of the vital signs used to assess the physical health of a subject. Non-contact-based measurements of both breathing rate and changes in breathing rate help monitor the health condition of subjects more flexibly.  Through this project, we will try to present an improved real-time camera-based adaptive breathing monitoring system, which includes real time :  (1) adaptive breathing motion detection,  (2) adaptive region of interest detection to eliminate environmental noise,  (3) breathing and body movement classification,  (4) respiration rate estimation,  (5) monitor changes in respiration rate to examine the overall health of an individual. |
| **Project Workflow/**  **Architecture** |  |
| **Scope Of Work** | The intent here is to create a model that predicts the normal respiration rate of a human being. Once the model has achieved a great accuracy, then this model can be used to predict based on a real time video feed, whether a human is stressed or not. This would be detected using the respiration rate of that person. |
| **Technologies Used** | For Backend:   1. Machine Learning: Jupyter/Google Collab for generating model 2. Programming language: Python with libraries: Numpy,Pandas, matplotlib   For frontend:   1. Hardware: Webcam for video feed |
| **Application** | The model can be used for:  1. Monitoring of patients with chronic respiratory conditions. Patients with chronic respiratory conditions, such as asthma can be monitored for changes in their breathing patterns.  2. Sleep apnoea screening and diagnosis. Sleep apnoea is a sleep disorder characteristic by pauses in breathing during sleep  3. It can be used to track the effectiveness of treatment for respiratory conditions.  4. It can be used to improve the efficiency and effectiveness of healthcare systems.  5.Monitor the health of people in high-risk environments. |
| **Project Timelines**  **(Total:120 hours)** | Group formation (Guide Allocation and Team Selection): 14 August 2023.  Project title justification: 16 August 2023.  Abstract: 16 August 2023. |