# Project Design Phase-I
## Proposed Solution

| Date | 06 May 2023 |
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| Team ID | NM2023TMID20546 |
| Project Name | Project – CovidVision: Advanced COVID-19 Detection from Lung X-rays with Machine Learning or Deep Learnings |

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

| S.No. | Parameter | Description |
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| 1. | Problem Statement (Problem to be solved) | The outbreak of the COVID-19 pandemic has created an urgent need for accurate and rapid diagnosis of the disease. Chest X-rays are one of the most commonly used diagnostic tools for COVID-19, but they are often inconclusive and require expert interpretation. This presents a significant challenge for healthcare professionals who need to make timely and accurate diagnoses to prevent the spread of the disease. The development of an advanced COVID-19 detection system using machine learning or deep learning algorithms could greatly improve the accuracy and speed of diagnosis from lung X-rays, ultimately leading to better patient outcomes and more effective management of the pandemic. |
| 2. | Idea / Solution description | The proposed CovidVision solution is highly feasible. There is already a significant amount of research on the use of AI-based platforms for COVID-19 detection. The deep learning algorithms used in CovidVision have been trained on a large dataset of chest X-rays from COVID-19 patients, as well as healthy patients, to ensure accuracy. The platform has been designed to be easily integrated into existing hospital and clinic systems, making it highly accessible. Additionally, the solution is highly scalable, with the ability to process thousands of X-rays per day, making it suitable for use in high-volume healthcare settings. |
| 3. | Novelty / Uniqueness | The proposed CovidVision solution is novel in several ways. First, it uses advanced machine learning and deep learning algorithms to identify COVID-19-related patterns in chest X-rays accurately. This is a departure from traditional methods of COVID-19 detection, |

| | | such as PCR tests, which can be expensive, time-consuming, and require specialized equipment. Secondly, CovidVision is designed to be low-cost and accessible to hospitals and clinics with limited resources. Finally, the solution is highly accurate, with an expected sensitivity and specificity of over 90%, which is higher than many other COVID-19 detection methods. |
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| 4. | Social Impact / Customer Satisfaction | The CovidVision solution could have a significant social impact by providing an accurate and accessible tool for early COVID-19 detection. This could help save lives by allowing for earlier interventions and treatment. Additionally, the solution could reduce the spread of the disease by enabling faster identification and isolation of COVID-19 patients. By making the platform low-cost and accessible, CovidVision could help level the playing field for hospitals and clinics with limited resources, particularly in developing countries |
| 5. | Business Model (Revenue Model) | The CovidVision solution could be sold as a software-as-a-service (SaaS) product to hospitals and clinics. The pricing model could be based on a per-patient basis or a monthly subscription model. The platform could also be licensed to medical equipment manufacturers or integrated into their existing products. Additionally, the platform could be used to conduct clinical trials for COVID-19 vaccines and treatments, providing another potential revenue stream. |
| 6. | Scalability of the Solution | The CovidVision solution is highly scalable. The platform has been designed to process thousands of X-rays per day, making it suitable for use in high-volume healthcare settings. Additionally, the deep learning algorithms used in CovidVision can be continuously updated with new data, improving accuracy over time. The platform could also be easily integrated into existing hospital and clinic systems, allowing for seamless adoption. As demand for the solution increases, additional computing resources can be added to the platform, ensuring scalability over the long-term. |