

**PROJECT PROPOSAL**

[Covid-19 detection using chest x ray]

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1. Summary

The detection of severe acute respiratory syndrome coronavirus 2, which is responsible for coronavirus disease 2019 (COVID-19), using chest X-ray images has life-saving importance for both patients and doctors. In addition, in countries that are unable to purchase laboratory kits for testing, this becomes even more vital. In this study, we aimed to present the use of deep learning for the high-accuracy detection of COVID-19 using chest X-ray images.

1. Introduction

The exponential increase in COVID-19 patients is overwhelming healthcare systems across the world. With limited testing kits, it is impossible for every patient with respiratory illness to be tested using conventional techniques. The tests also have long turn-around time, and limited sensitivity. Detecting possible COVID-19 infections on Chest X-Ray may help quarantine high risk patients while test results are awaited. X-Ray machines are already available in most healthcare systems, and with most modern X-Ray systems already digitized, there is no transportation time involved for the samples either. In this work we propose the use of chest X-Ray to prioritize the selection of patients for further RT-PCR testing. This may be useful in an inpatient setting where the present systems are struggling to decide whether to keep the patient in the ward along with other patients or isolate them in COVID-19 areas. It would also help in identifying patients with high likelihood of COVID with a false negative RT-PCR who would need repeat testing. Further, we propose the use of modern AI techniques to detect the COVID-19 patients using X-Ray images in an automated manner, particularly in settings where radiologists are not available, and help make the proposed testing technology scalable.

1. Needs/Problems

* Chest x ray dataset
* Platforms that program will implement on
* Accuracy

1. Goals/Objectives

* Detect covid19 using chest x ray
* Identify at least %93 of the covid-19 correctly

Scenario: First user will enter the system and upload a file(png) which is an x-ray. The system will scan the file and print a result. The result will be a statistical number. Like “You may caught coronavirus: %95”

1. Procedures/Scope of Work

We need to understand that what x-ray and covid-19 do. For that, we may need to read some article and we may need to discuss an expert. After that, we have to understand dataset which is all x-rays. We must know which x-ray is coronavirus which is not. (add knowledge of programming languages platforms training data so on...)

1. Timetable

Provide detailed information on the expected timetable for the project. Break the project into phases and provide a schedule for each phase.

|  |  |  |
| --- | --- | --- |
|  | **Description of Work** | **Start and End Dates** |
| Phase One | Documentation | 09.11.2020- |
| Phase Two | Implementation |  |

You can also use a Gantt chart for more detailed project timetable:

|  |  |  |
| --- | --- | --- |
| **ACTIVITY** | **TIME PHASE** | |
| Understanding | Phase1 | Phase2 |
| X |  |
| Gathering information | X |  |
| Organising | X |  |
| Documenting | X | X |
| Analysing | X | X |
| Reviewing | X | X |
| Planning | X | X |
| Design |  | X |
| Development |  | X |
| Testing |  | X |
| Deployment |  | X |

1. Stakeholders

List the key stakeholders who will be responsible for completion of the project, as well as other personnel involved in the project.

|  |  |
| --- | --- |
| Client | Hospitals, any other person or foundation which is in relation |
| Project manager | Elnaz PASHEI |
| Developers | Emre GÖL, Kaan Berke UĞURLAR |

1. Evaluation

Discuss how progress will be evaluated throughout at the end of the project.

– User interfaces (both web and android)

– Increase of accuracy

– More convenient dataset may be captured later