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|  | **HASAN KALYONCU UNIVERSITY****Computer Engineering Department****CENG 499 Project Proposal Form** |

**Part I. Project Proposer**

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| **Name Lastname** | **Assist. Prof. Dr. Saed ALQARALEH** | **E-mail** | **saed.alqaraleh@hku.edu.tr** |
| **Company Information****(If you have collaboration with a company)** |  |

**Part II. Project Information**

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| **Starting Term** |

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| **Title of the Project** | A Multipurpose Mask Detection System using Deep Learning  |
| **Project Description** |
| The world is facing a huge health crisis due to the rapid transmission of coronavirus (COVID-19). According to the World Health Organization (WHO)’s official Situation Report – 205, coronavirus disease 2019 (COVID-19) has globally infected an extremely large number of people, causing millions of deaths. Scientists proved that wearing face masks works on impeding COVID-19 transmission. It is very difficult to monitor people manually in these areas but Machine learning and Deep Learning can help to fight Covid-19 in many ways. In this study, a deep learning-based application will be developed to automate the process of identifying the people who are not wearing masks for multiple purposes, such as self-control gates (automated gates) and issuing fines. Multiple evaluation metrics such as accuracy, detection time, precision, recall, and f-1 score will be used to evaluate the proposed system. |
| **Project Justification** |
| **Novelty** |
| **New aspects** | There are a few studies for face mask detection, but they are still in the preliminary stage. This study will deeply investigate the efficiency of deep learning for building a Multipurpose Mask Detection System. |
| **Complexity** |
| **Challenging problem and issues** | The student will learn the principle of deep learning. |
| **Related computer science fields and subfields** | Machine Learning, Deep Learning. |
| **Tools** | Python |
| **Risk involved** |
| **Potential problems and alternative solutions** | The number of available samples is a problem, however, a new dataset can be created in a short period. |
| **Minimum work required** | 5 months. |