Bandr AlSwyan, Rempee Kalia
CSC-696 Senior Capstone
Professor Owrang
March 13, 2021

Progress Report 1

In the beginning of our project, it is worth to mention that the objective is to give governments, police enforcement law and authority the tools to identify persons' mask status during a pandemic. For a little background information, during the year of 2020 and forward, society has adapted to a new lifestyle of how to protect themselves, health wise, while in public environment. Compiling with a new policy of mask wearing has its pros and cons, it will protect a person's health but will everyone follow the rule? In addition, how do we know that everyone is wearing a mask? This raises a question of who is actually wearing a mask during the COVID-9 pandemic. These are the questions that have risen in our research experiment and that will help us identify what it takes to build a AI model for government control.

Using deep learning, python, TenserFlow and Caffee libraries, we are creating a model that is able to detect whether a face mask is on, between or off an identified face. So far, our model is able to detect a face mask and the confidence level of it based on an image. We also tested this for a live demo and found that the confidence level has changed as seen in the presentation. This varies, which we will be still researching throughout the project, but are collecting six thousand images to make this comparison. To understand the simplicity of the model, we want to detect who is wearing a face mask and who is not, in order to have a better understanding of mask society's role. Using an AI detection model, we hope to add additional features, such as voice assistants stating the mask wearing or color detection. For the remainder of the semester we will be researching these areas.

For the remainder of the semester we are going to work on features in our AI development model that would add variety to how mask detection is done. This includes the assistant of the voice helper, possible color features of masks and the uncertainty (or confidence level) of detecting if an image has a mask on. Currently, we are finalizing the voice mechanism of the product to announce when the face mask is on or not. Our data will be a collection of images that come from datasets, google and the web, but will focus on regions of the world. Another area that needs continuous progress would be the confidence level from the Mask Control Identification that will be trained to perform the best detection as possible.

One area that is in progress is looking at the ethical and unethical standpoint of the photographs and how to distinguish these areas. This brings in the discussion of cultures and how they are perceiving the mask situations in their respective countries. Since there are different cultures around the world, how exactly can we ensure that a culture is well respected in the Mask Control Identification system? As we are working on the observance of these issues, it is affecting the learning of our identification model in some countries.