

Communication Plan

Face Mask Detection

Northeastern University

CS 5500

Spring 2021

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INTRODUCTION

As COVID-19 has quickly swept over the world and upended the lives of many, masks have emerged as an easy and effective way to mitigate the spread of the disease in public spaces. However, despite the overwhelming evidence supporting the efficacy of face masks¹, enforcement of their proper usage (or usage at all) has proven to be another challenge in its own right.

Due to the inherent risk associated with close human interactions, our goal is to make it easier for businesses or public spaces to determine whether a person is following mask-wearing protocols, without the need for human interaction or intervention. The first step towards this goal is automating the detection of face masks on human faces. While this is a trivial task for people, it requires leveraging complex machine learning concepts for computers to do the same. To achieve this, we built a machine-learning model trained on images of faces with and without masks to accurately detect if a person is following the current mask-wearing protocol. The second step is making our model as user accessible as possible. For this we will create a web interface that allows users to provide an image of a face as an input to our model. The model will then determine if the person in the uploaded image is wearing a mask correctly. Potential applications we envision include the use of our interface to allow or deny entry to individuals into public spaces.

PROJECT COMMUNICATION REQUIREMENT

The project team is composed of 8 Computer Science graduate students from various Northeastern University campuses. Due to various member's location and the current COVID-19 pandemic, the main communication method for this team will be done remotely. The communication requirement considerations differ according to the constituents considered for this project.

Project Team

The main communication requirement for the team consists of a kick-off meeting, decision making, and information exchange. The kick-off meeting has been conducted at the beginning of the project to get members to know each other and brainstorm ideas for the project. This project has many open-ended requirements such as datasets options, platforms to host the application, possible updates and additional features, and any urgent issues. Because of the mentioned needs, the team has decided that decision making via meetings on Microsoft Teams will be the most efficient. Information exchange establishes the progress of moving forward. It includes status updates between sub-teams and members.

The team is divided into sub-teams: Python Development Team and Web Development Team. Since each sub-team works on a specific section of the project, each sub-team requires inter-personal and inter-team communications. To reduce overwhelming members with

¹ MacIntyre C, Cauchemez S, Dwyer DE, Seale H, Cheung P, Browne G, et al. Face Mask Use and Control of Respiratory Virus Transmission in Households. *Emerg Infect Dis*. 2009;15(2):233-241. <https://dx.doi.org/10.3201/eid1502.081167>

messages, each sub-team has a designated contact person who is contacted regarding any urgent information exchange other than the weekly team meeting.

Python Development Sub-Team

The Python team is meeting weekly to discuss the progress, share code, and provide feedback via Microsoft Teams. As the team works simultaneously, each member is using Github to push and pull the code. Since work is done remotely, the team is using a name convention file to make variable names. The designated contact person for this sub-team will be Zihao Qiu.

Web Development Sub-Team

The web development team will have a weekly meeting to do a status update specific to the development of the website and schedule works to be done in an upcoming week. The meeting will be conducted via conference call. We will be creating a development branch off of the main repository. Then we will all do web app development using that branch as our main until code can be combined with the python team. Code will be added through pull requests with reviewers assigned as needed. The designated contact person for this team will be Julia Rakas.

Stakeholder

The stakeholder of this project is Luna Szymanski, the assigned teaching assistant for this course. The stakeholder has interest in the decisions and outcomes of this project. A robust communication plan between the development team and the stakeholder is needed to ensure the success of the projects. As discussed with the stakeholder, the stakeholder and team will be communicating through Microsoft Teams. Every Friday, the stakeholder will be updated with what the team has accomplished, the obstacles, and future steps the team plans to take. The stakeholder will have access to the Trello FaceMask Project page in order to view the backlog, the current work the team is working on, and the tasks that have been completed.

Customer

All the members of the class are potential customers/end-users. The team plans to communicate with the customers/end-users by providing highlights of the project, such as sharing milestones, demos, or unique features that can be marked for marketing purposes.

GOALS AND OBJECTIVES

Since the Scrum method was adopted for this project, the scrum master ensures that the tasks do not stray off course from the main goals of the project. The communication goal for team members is to initiate a clear and unambiguous conversation environment so that the team knows where they are and what the next move is. The communication goal for the scrum master is to remove any obstacles that impede the ability of the team to deliver the product goals and deliverables, and to serve as a buffer between the team and any distractions.

The goal of the communication between the team and the stakeholder is to understand the requirements and the needs from the person who can influence the success of the project. This

includes but not limited to clarifying requirements, discussing options, and getting feedback about specific features being considered.

The goal of the communication between the team and customers is to demonstrate the unique features of the product and draw user's interests to maximize the value and uses of the product.

With these goals in mind, the communication methods mentioned above with each of the major constituencies will be space to prune project backlog, assess current sprint progress, refine any new cards, and discuss the state of the project. The sub-team meetings will contain each member's specific story that they are working on. If there are any domain specific blockers/questions, these will be discussed as well. At the moment, the plan is for sprints to span 2 weeks with demos scheduled at the end of each sprint. Sprint planning for the subsequent sprint takes place after the demos since that allows for team members to concretely have expectations set for the following week. The weekly message to Luna mentioned above will include what we accomplished through the week, obstacles we faced, and what we plan to work on. Methods of communication between teams and sub-teams are subject to change as needed.

Agenda

Date	Communication Type	Action Item
02/23	Kick-off Meeting	<ul style="list-style-type: none"> • Introduction between team members • Possible ideas discussion
03/01	Project Team Meeting	<ul style="list-style-type: none"> • Three new members joined since the last meeting • Introduction between team members • Possible ideas discussion
03/03	Project Team Meeting	<ul style="list-style-type: none"> • Finalize ideas brainstorming • Vote for project idea to pursue
03/18	Project Team Meeting	<ul style="list-style-type: none"> • Three new members joined since the last meeting • Explained the details of the project • Introduced similar project's reference • Sub-teams formed
03/25	Project Team Meeting	<ul style="list-style-type: none"> • Setup repository • Scrum method adopted • Discussed how to code as a team
03/31	Stakeholder Meeting	<ul style="list-style-type: none"> • Meet the product owner
04/01	Weekly Team Status Update	<ul style="list-style-type: none"> • Setup a backlog with product owner • Sprint (start to code)
04/08	Weekly Team Status Update	<ul style="list-style-type: none"> • Weekly scrum meeting
04/15	Weekly Team Status Update	<ul style="list-style-type: none"> • First sprint ends • Deliver a demo to customers • Check backlog • Start second sprint
04/22	Weekly Team Status Update	<ul style="list-style-type: none"> • Weekly scrum meeting • Final discussion • Presentation preparation
04/29	Finalize Project	<ul style="list-style-type: none"> • Final product delivery

COMMUNICATION METHODS AND TOOLS

GitHub	Code sharing https://github.ccs.neu.edu/2021SPCS5500SB/project-mask_detect
Microsoft Teams	Main communication tool including team meeting and discussion post
Google Doc	Report and proposal drafting
Trello Board	Task Management https://trello.com/b/Wj24hcVg/facemask-project

CADENCE OF COMMUNICATION

Communication	Method	Frequency	Goal	Audience	Deliverable
Scrum	Teams	Weekly	Discuss what each team member did	Project team	Formal written/Trello
Progress Updates/Review	Meeting Instant messaging	Weekly Daily	Discuss project status of both subgroups and next steps; potential issues	Project team	Formal written Agenda
Sub-team Planning	Meeting Instant messaging	Weekly Daily	Code review; gather feedback; set goals for next meeting	Sub-team members	Formal verbal/Tracked on Trello Agenda
Project Status Report	Meeting	Weekly	Project status report; make sure we're on track to meet requirements	Project team and stakeholder	Formal written
Final Project Discussion	Meeting	At the end of the project	Discuss takeaways	Project team	Formal verbal

ROLES

Role	Name	Title	Email
Project Stakeholder	Luna Szymanski	Teaching Assistant	szymanski.l@northeastern.edu
Customers / End-Users	All members of the class including classmates and teaching staffs	N/A	N/A
Python Development Team			
Scrum Master	Zihao Qiu	Development Team Member	qiu.ziha@northeastern.edu
Project Secondary Contact	Aushee Khamesra	Development Team Member	khamesra.a@northeastern.edu
	Yuqi Tao	Development Team Member	tao.yuq@northeastern.edu
	Robert Dragomir	Development Team Member	dragomir.r@northeastern.edu
Web Development Team			
Project Primary Contact	Randy Lirano	Development Team Member	lirano.r@northeastern.edu
	Julie Rakas	Development Team Member	rakas.j@northeastern.edu
	Jinyang Zheng	Development Team Member	zheng.jin@northeastern.edu
	Shruthi Raghuraman	Development Team Member	raghuraman.s@northeastern.edu