Computer Engineering Dept.
D12 B / C
Synopsis Document
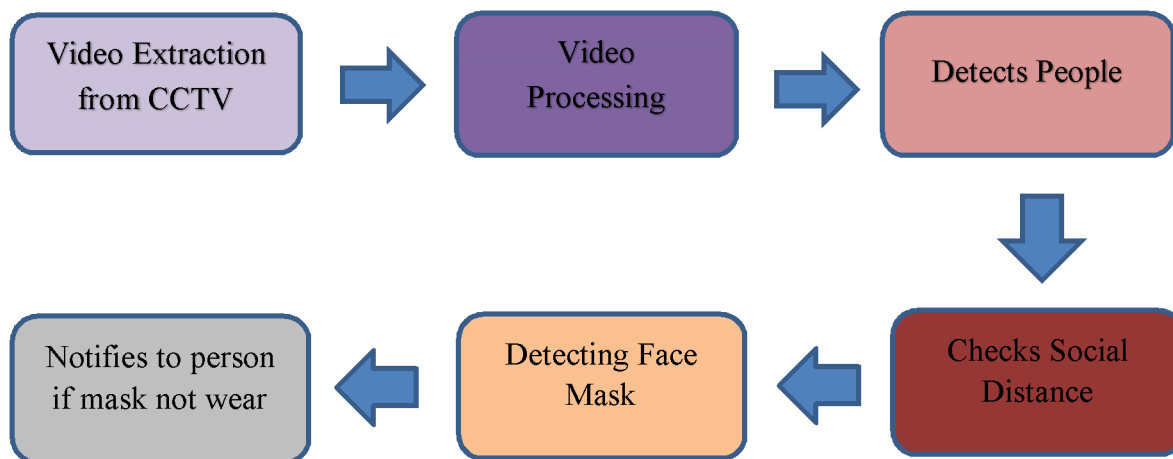## Academic Year : 2020-21

Name of the Project	**Real time Face Mask Detection and Social distance Monitoring System**
Objective / Vision	The Objective of our project is to maintain **Social Distance** among people and to check **Face Mask** on face of peoples in the time of **COVID-19** . In this the model will send a notification to the person not wearing a face mask and notification to the administrator if the group of people breaking the rules of Social Distance this precautions will reduce the spreading rate of Corona Virus.
Users of the System	1. Colleges / Schools 2. Hospitals 3. Airports 4. Offices
Functional Requirements	1. Photos of people wearing mask and without mask will be used as base for extracting data for Face Mask Detector. 2. While travelling in a group the detector will give an alert message for individual's precautions. 3. Social distancing of about 6 feet need to be there while you are at work or travelling somewhere. 4. How properly the face mask is used like it covers your nose, mouth, forehead etc. will also help people to stay safe.
Optimal Features	Automatically notify peoples
User interface priorities	Model will live notify peoples or administrator
Reports	Real time descriptive statistics of crowd with respect to percentage of people wearing or not wearing mask, social distancing is followed or not will be checked and notified to administrator if break
Other important issues	1. Should notify immediately if there is any danger. 2. Should work during peak times.
Team Size	4
Technologies to be used	1. Tensorflow 2. OpenCV 3. Matplotlib 4. Sklearn 5. Argparse

	Tools to be Used	CCTV cameras
	Final Deliverable must include	A web base or mobile application for easy and effective use.
	Example	Crowded Marine Drive in Mumbai *Unlock 1.0: Picture of crowded Marine Drive in Mumbai leaves netizens worried* Our Model will detect Social Distance And Face Mask Detection which will help to decrease the rate of COVID-19
	References	1. Monitoring Social Distance and detecting https://arxiv.org/pdf/2005.01385.pdf 2.Will the new crown epidemic be a catalyst for the development of Internet + medical health?" https://www.cn-healthcare.com/articlewm/20200224/wap-content-1090153.html, accessed March 18, 2020. 3.Coronavirus disease (COVID-19) advice for the public: myth busters. In: WHO/coronavirus disease 2019 [website]. Geneva: World Health Organization; 2019 (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters 4.Coronavirus disease (COVID-19) advice for the public. In: WHO/coronavirus disease 2019 [website]. Geneva: World Health Organization; 2019 (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public, accessed 19 February 2020) 5.Risk communication and community engagement (RCCE) readiness and response to the 2019 novel coronavirus (2019-nCoV): interim guidance v2, 26 January 2020. Geneva: World Health Organization; 2020 (WHO/2019-nCoV/RCCE/v2020.2; https://www.who.int/publications-detail/risk- 6. "Limited testing poses challenges to mapping COVID-19 spread". Modern Healthcare. 30 March 2020. Retrieved 2 April 2020

		7. "Laboratory testing for 2019 novel coronavirus (2019-nCoV) in suspected human cases". www.who.int. World Health Organization. Retrieved 2 April 2020
		8. "Case definition and European surveillance for COVID-19, as of 2 March 2020". European Centre for Disease Prevention and Control. Retrieved 2 April 2020
		9. "Using face masks in the community - Reducing COVID-19 transmission from potentially asymptomatic or pre-symptomatic people through the use of face masks". European Centre for Disease Prevention and Control. 8 April 2020. Retrieved 2 June 2020
		10. "Using face masks in the community - Reducing COVID-19 transmission from potentially asymptomatic or pre-symptomatic people through the use of face masks". European Centre for Disease Prevention and Control. 8 April 2020. Retrieved 21 May 2020
		11. "Coronavirus Disease 2019 (COVID-19)". Centers for Disease Control and Prevention. 11 February 2020. Retrieved 9 April 2020
		12. "Use of cloth masks in the practice of infection control – evidence and policy gaps". International Journal of Infection Control.
		13."Testing the Efficacy of Homemade Masks: Would They Protect in an Influenza Pandemic?". Disaster Medicine and Public Health Preparedness. Cambridge University Press (CUP).
		14. "Not Enough Face Masks Are Made In America To Deal With Coronavirus". NPR.org. 5 March 2020. Retrieved 10 April 2020
		15."NIOSH-Approved N95 Particulate Filtering Facepiece Respirators - A Suppliers List". U.S. National Institute for Occupational Safety and Health. 19 March 2020. Retrieved 27 March 2020

Conceptual Diagram :

Video Extraction from CCTV → Video Processing → Detects People → Checks Social Distance → Detecting Face Mask → Notifies to person if mask not wear

Date: 30-06-2020

Mentors Signature:

Group Members (Roll No. & Names):

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