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A NOVEL MODEL FOR RECONSTRUCTING HIGH QUALITY IMAGE FROM VIDEO

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ABSTRACT_ Smartphones with high-resolution built-in cameras are very popular nowadays. Instead of scanning papers, people tend to take pictures of them using their smartphones. a scanning device It's difficult to scan anything with scanners because of their input size limitations. The Quality and accuracy of smartphone cameras are insufficient for photographing large documents such as posters. proposed a pipeline in this paper for creating a high-resolution image of a paper derived from a video recording While the video was being captured, We assume the camera was moved slowly from a close distance across the entire surface of the document. We find each frame in the document and choose the highest possible quality from every accessible frame, using a sharpness criterion. Our method has been tested with the SmartDoc Video data set.

KEYWORD: Image blending, Document image, video

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1.INTRODUCTION

There is a compromise between the space of the scene that is encompassed in the picture and the degree of subtleties that the picture passes on while taking a photograph with a camera. When attempting to capture a full viewpoint on a large banner, for example, little phrases on the banner may appear incoherent if the entire banner is crammed within the casing.

Picture mosaicking solves this problem by altering high-quality photos of various parts of a scene and then sewing those fractional pictures together in a consistent manner. It's useful in a variety of fields, such as elevated imaging, where aeronautical vehicles inspect the world's surface by capturing many photographs and then combining them into a single guide [1], [2]. Different applications where it is important to build an entire mosaic out of midway photographs include display picture creation [3], mosaic of endoscopic recordings [4], and sewing tiny pictures [5.

2.PROPOSED SYSTEM

We place each frame in the document and use a sharpness criterion to select from all accessible frames in the suggested method the highest qualities for each part of the document. To evaluate the performance of the proposed effort, the author uses the SMARTDOC 2017 data set. This data set contains document videos, a ground-reality picture and video and picture places with the top, left, bottom, and right coords for each document.

In propose work implementation we will take input video with coordinates and ground truth image and then extract frame from video and from frame we capture document image by giving coordinates and

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this process is called as homographic matrix calculation or image warped. After performing image warped we will calculate warped image similarity with ground truth image and the warped with high similarity will be considered as high resolution document image. Homographic will replace weak intensity pixels with high intensity pixels.

3.Algorithm

In propose work implementation we will take input video with coordinates and ground truth image and then extract frame from video and from frame we capture document image by giving coordinates and this process is called as homographic matrix calculation or image warped. After performing image warped we will calculate warped image similarity with ground truth image and the warped with high similarity will be considered as high resolution document image. Homographic will replace weak intensity pixels with high intensity pixels.

4.Proposed System architecture

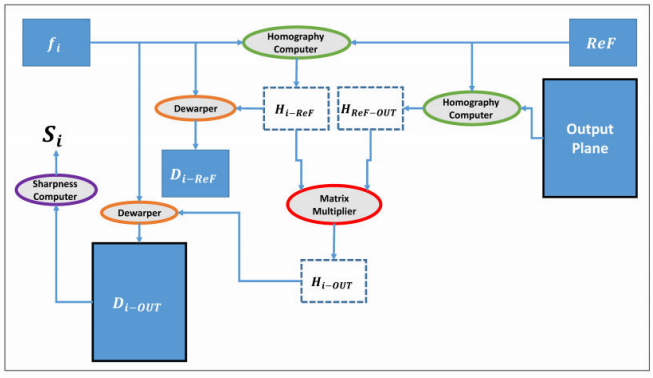

Fig. 1. Block Diagram of the Method

High quality information from various parts of the document is presented in the images of the video. The simple overview of the procedure is to remove these data from the frames and mix them with a

complete picture. The region of the primary document, the content in a frame, must therefore be determined.. We use SURF [21] to find the patches in the final mosaic to address this question. Patches will also be disconnected to the intended output projection plane. The weighted average of all pixels from the same point of view in the deware frame is each pixel value in final output. The disappearing frames are measured by their sharpness, which is the metric score of [22].

5.Experimental results

The planned technique was assessed on recordings from the 'SmartDoc 2017 Video Capture' [20] dataset. The dataset-'SmartDoc' for quickness contains an assortment of archive recordings recorded utilising different cell phone gadgets. The reports can be scholarly papers, ID cards, banners and furthermore screen. Records themselves, might be made out of text, pictures, and diagrams. The recordings are caught in various light circumstances and have various types of contortions, for example, screen commotion, impediment, movement obscure, reflection, light-spot, and mathematical bends

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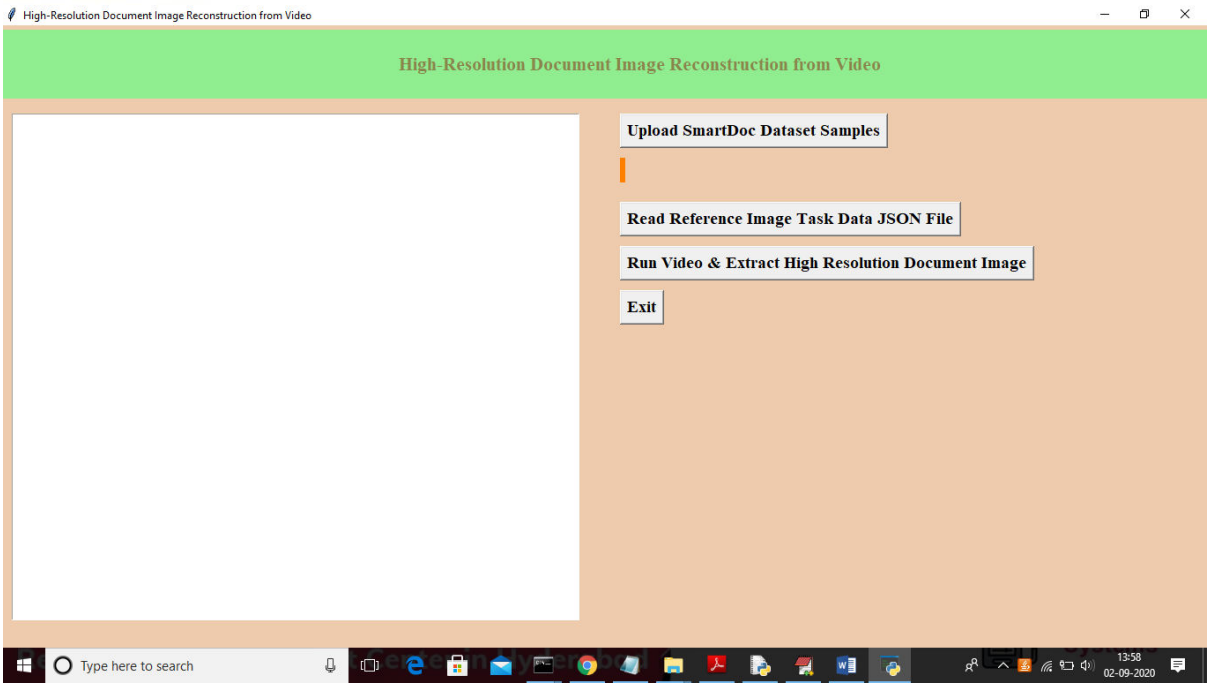

Fig 2:In above screen click on 'Upload SmartDoc Dataset Samples' button to upload samples

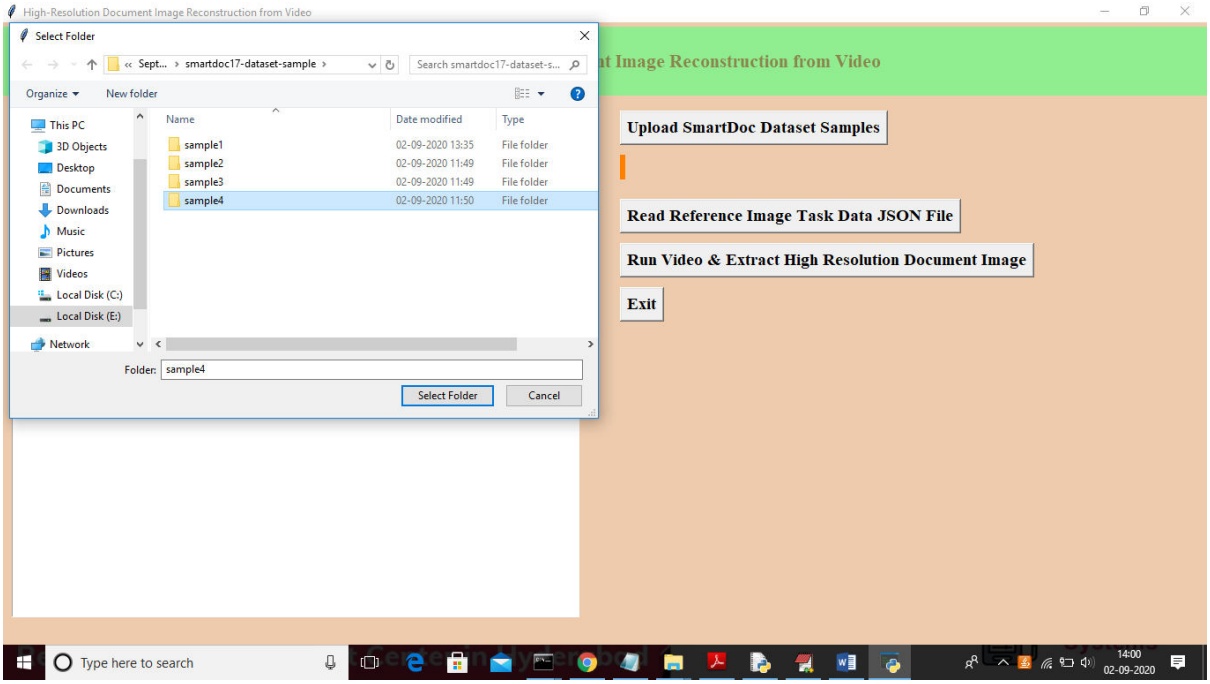

Fig 3:In above screen I am uploading 'sample4' folder which contains video and other files and this is small size video will get output after running 350 frames and other samples contains more

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than 1500 frames so to get output other sample may take time. After uploading dataset will get below screen

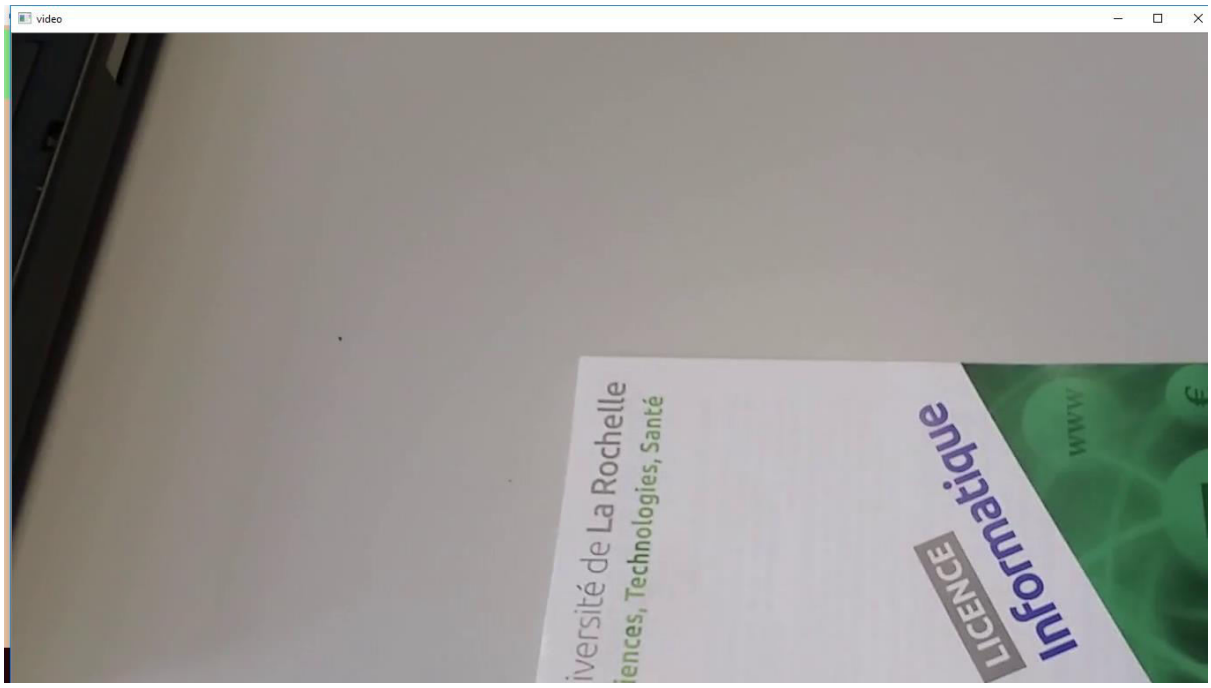

Fig 4:In above screen we can see video started playing and while running u can see video is playing. Below is another frame

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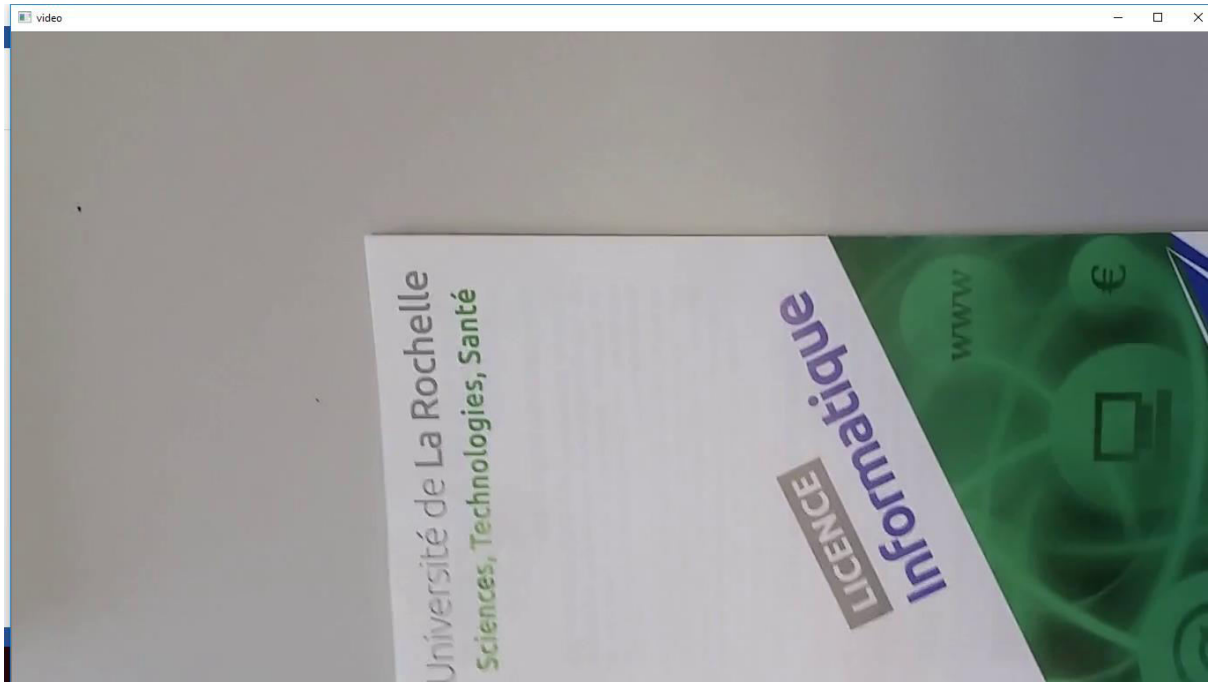

Fig 5:In below black console we can see frame no with similarity score with ground truth image

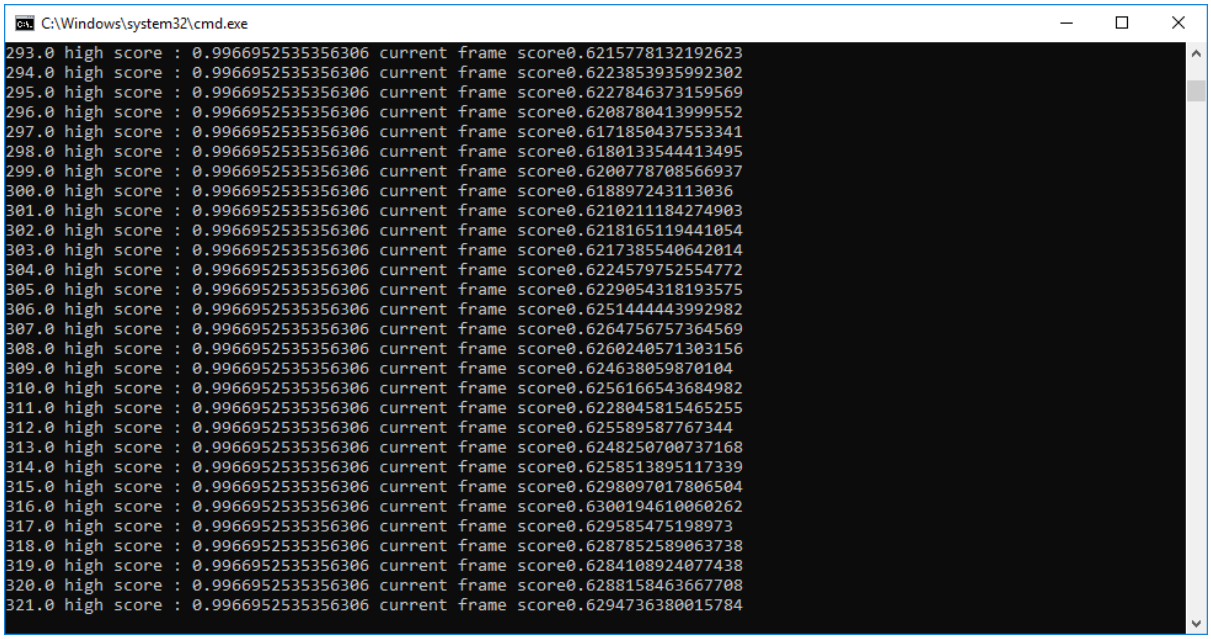

Fig 6:In above screen we can see first value is frame no and second value is highest similarity found frame and third value is current frame similarity

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Fig 7:In above screen first image is the ground truth image and second image is the high resolution image extracted from video and background third image is the reference video image from which we extracted high resolution image.

6.Comparitive Study

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MSSIM VALUES OF THREE TESTING PARADIGMS FOR THE PROPOSED METHOD AND THE NAIVE ALGORITHM PRESENTED IN THE DAT.

	Ours			Naive		
Test Sample	Local Registered	Global Orig	Global Registered	Local Registered	Global Orig	Global Registered
1	**0.78**	**0.78**	**0.77**	0.60	0.58	0.60
2	**0.76**	**0.75**	**0.74**	0.63	0.62	0.63
3	0.78	0.78	0.78	**0.81**	0.78	**0.81**
4	**0.77**	**0.74**	**0.76**	0.72	0.70	0.72
5	**0.79**	**0.78**	**0.78**	0.71	0.63	0.69
6	**0.82**	**0.80**	**0.80**	0.61	0.55	0.60
7	0.54	0.51	0.52	**0.62**	**0.56**	**0.61**
8	**0.70**	**0.59**	**0.57**	0.44	0.40	0.35
9	**0.74**	**0.68**	**0.61**	0.60	0.58	0.55
10	**0.67**	**0.61**	**0.58**	0.55	0.52	0.50
11	**0.69**	**0.57**	0.51	0.54	0.52	0.51
12	**0.73**	**0.67**	**0.67**	0.62	0.58	0.55
13	**0.74**	**0.59**	**0.61**	0.58	0.50	0.45
14	**0.75**	**0.67**	**0.67**	0.64	0.63	0.61
15	**0.77**	**0.73**	**0.73**	0.64	0.63	0.62
16	**0.70**	**0.63**	**0.64**	0.62	0.54	0.57
17	**0.57**	**0.52**	**0.52**	0.46	0.41	0.40
18	**0.71**	**0.69**	**0.66**	0.62	0.61	0.59
19	**0.72**	**0.71**	**0.71**	0.66	0.64	0.66
20	**0.82**	**0.81**	**0.82**	0.79	0.77	0.79
21	**0.81**	**0.80**	**0.81**	0.54	0.51	0.53
22	**0.68**	**0.67**	**0.67**	0.67	0.61	0.66
23	0.75	0.74	0.72	**0.77**	**0.76**	**0.76**
24	**0.82**	**0.82**	**0.82**	0.78	0.76	0.77
25	**0.58**	**0.56**	**0.58**	0.47	0.46	0.42
26	**0.74**	**0.73**	**0.74**	0.63	0.63	0.63
27	**0.63**	**0.64**	**0.61**	0.50	0.49	0.46
28	0.53	0.50	0.52	0.53	**0.53**	0.52
29	**0.70**	**0.70**	**0.69**	0.57	0.57	0.56
30	**0.56**	**0.55**	**0.55**	0.37	0.35	0.37
31	0.64	0.63	0.60	0.64	0.63	0.60
32	**0.76**	**0.76**	**0.76**	0.55	0.54	0.49
33	**0.76**	**0.75**	0.70	0.71	0.70	0.70
34	**0.80**	**0.78**	**0.78**	0.68	0.66	0.67
35	**0.66**	**0.62**	**0.63**	0.54	0.52	0.48
36	**0.80**	**0.79**	**0.79**	0.75	0.74	0.74
37	0.68	**0.67**	**0.67**	0.68	0.65	0.66
average	**0.71**	**0.68**	**0.68**	0.62	0.59	0.59

Video from the 'SmartDoc 2017 Video Capture' [20] dataset was evaluated for the proposed technique. A range of document films, recorded on various smartphones, are in the dataset - 'SmartDoc' for short. The documents may include academic documents, ID cards, placards, and screens. Documents can consist of text, photos and graphs itself.

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Fig 7:In above screen first image is the ground truth image and second image is the high resolution image extracted from video and background third image is the reference video image from which we extracted high resolution image.

7.Conclusion

In this paper, we presented a calculation for creating a great picture from a video recorded by a cell phone. Having different perspectives for various locales of a record, our technique, first, adjusts them to a solitary perspective and second, consolidates them utilizing a weighted normal as for their sharpness scores. Our strategy manages twists like reflection, impediment and movement obscure. With the strategy we expanded the readability of the archive picture in contrast with a solitary camera shot that contains the entire record.

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