

IoT Enabled Wearable Camera for Emerging Application World

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ABSTRACT

IoT Enabled Wearable Camera is used to make world's smallest wearable camera that can capture video clips. This hardware is a wearable camera device, which users can mount on their sunglasses, goggles and helmets using magnets already available in the camera. This Camera gives better resolution of video. And to store these videos and to charge cameras we have one docking station. The docking station that can charge camera and also transferred video wirelessly. With the help of wifi , stored video can be directed uploaded On cloud. With the use of mobile application we can directly take audio and video from cloud. The main aim is to develop smallest wearable camera that have most capabilities that can fulfill our daily basis need.

Keywords - Wearable camera , IoT , Cloud , Docking station

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I. INTRODUCTION

Internet of things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the communication that occurs between these objects and other internet-enabled devices and systems. Internet of things is an ecosystem of connected physical objects that are accessible through the internet. IoT enabled wearable camera that magnetically mounts to sunglass, goggles, helmets and other items. IoT enabled wearable camera solution consists of two modules, Camera and docking station. Camera records video and audio data to storage. When camera is present into docking station, data recorded in camera is transferred to storage of docking station for preview to mobile device via wireless interface-Wi-Fi/BT. Video resolution of recording at either 720p@60 fps or 1080p@30fps.To transfer a video to phone, we can use both Bluetooth and Wi-Fi. Wi-Fi is used for high speed transfer. This smallest camera is used to capture video. Wear camera around neck or on figure as a ring. Use application to share videos and audio. The main aim is to develop this camera, which is used to capture some special moments where the camera cannot be handy. For example, capturing a video while climbing a mountain is possible with this camera. Using Wi-Fi access data from cloud. With the use of mobile application, store the videos to our mobile device and then share these videos to other users easily. Wearable camera is used to capture video and some special moments where handheld camera cannot be used. For example, video capturing while surfing or dirt biking. The storage capacity of wireless camera is 4 GB. Gateways are responsible for routing the processed data and send it to proper location. With the help of wifi, stored videos will be directly uploaded on the cloud. In this

automated generation, to make users work easy, whenever the camera will be connected to the wifi hotspot it will automatically upload data on cloud. With the use of mobile application we can directly take video and audio from cloud. Also transfer video and audio to other user with the use of mobile application. Cloud includes User management, Data storage and Web management. User management describes administrators to manage user access to different IT resources like systems, devices, applications, storage and more. IT admin create, manage and delete users on cloud. Logging users, managing users, account and user modification, handling the termination process, communication with the users all things includes in user management. Cloud storage on which data is stored on server can be accessed from internet. Web management provides a link through which we can directly take video/audio from cloud. IoT enabled wearable camera that magnetically mounts to sunglass, goggles, helmets clothes and other items. IoT enabled wearable camera solution consists of two modules, Camera and Docking Station. Camera records video and audio data to storage memory. Docking station used to charge camera and transfer video clips from camera to mobile devices. Using mobile application video clips can be shared on social media like (FB, Twitter, etc). Also, mobile application is used to configure and control camera.

II. RELATED WORK

In [1], the purpose of this product is violation and rape cases victim's cases, which is increasing now a days. Women and children are not safe. Now a days women are suffering more rape cases in the society so for that intelligent hidden camera is been developed. So that moments is captured with the help of that it should decide

whether the victim is in danger or not. And according to that alert system and locating tracking chip is also been added with the help of IoT system, security is been supported. In this while capturing the video it will directly transmit it to the cloud. There is any danger it will directly contact to the authorized contact list. Hand gestures and facial reorganization method is been used to detect. The proposed system is developer for security purpose of women and children for their security purpose. The planned camera system is supported with internet to connect the device with our home and authorized officers. Camera system recording audio/video and storing video stream. Then transmittal video streaming into cloud platform. With the utilization of net good phone simply take video/audio from cloud platform. The hardware 0.5 consists of processor and a camera system, the position of the device is tracked associated degree AN alert message is transmitted with the involvement of GSM and GPS module.

In [2], "the common observe of manual synchronization of body-worn, and video cameras is for integration into everyday observe for applications like real-world behavior analysis. We've a bent to increase associate existing technique for automatic synchronize and live its performance throughout a true experimental setting. Special visual communication, captured by a camera, are matched with recorded signal exploitation cross-correlation based time-delay estimation. PCA-based data pre-processing makes the plan of action against direction unsimilarity between the marking visual communication and thus the camera plane." Supported a literature survey we have a tendency to develop and enforced a synchronization technique wherever wears of accelerometers perform bound marker gestures ahead of the camera. The temporal relation technique automatically detects video and measuring instrument information and calculates normalized cross-correlation values. We have a tendency to have an interest during good and simple to use automated synchronism technique for the subsequent use-case. The overall set up for either manual or automatic synchronization in capturing certain specific activities sequences by all modalities involved.

In [3], "the implementation of style and system technique flow with functions will facilitate the wearers amount of your time face realize, recognition and identification. The formula produce with capturing adequate build video frames from wearable camera followed by interested object realize and detection. We have a tendency to tend to indicate effectiveness and additionally the usefulness of this system by experimental results." The aim of Face Detection Module is to search out the face that the police want. To avoid repeatedly police investigation wrong object and utilize the more resource plenty of efficiently, to implement module is split into 2 steps to implement: Error improvement and face find. Period of time face find is one in all the foremost in style and necessary problems within the domain of laptop vision. Nowadays amount of your time face notice technology has wide used in face access system, flying field safety and intelligent transportation etc. Machine

learning high tech is employed to realize higher ends up in object find space. The illustration purpose of read supported machine learning technique is SVM, theorem classifier and many more.

In [4], Startle Cam can be a wearable video camera, computer, and hold system, which allows the camera to be contained via events involving the user. The aim is to capture events and store into system. Startle Cam monitors the wearer's skin physical phenomenon. at intervals the other mode, the camera are usually set to automatically record photos at a gaggle frequency once solely some responses are identify from the user, illustrate that their attention level has born. Startle Cam could be a wearable ADPS with a digital video camera, physiological sensors and a wireless affiliation to the web. Method formula to note the jump, to hold a move buffer of video photos from the photographic equipment, and to manage the outflow of video knowledge to the disc or the web. Pictures from the camera are hold on during a block of memory till the Startle Cam detection formula is triggered. "Startle Cam system be found in of a skin natural phenomenon detector (GSR) that's sampled by associate analog to digital device attached to a wearable laptop. A photographic equipment and digital equipment are also attached to the laptop." Photos are taken by the photographic equipment and detain an awfully buffer in memory. Once the laptop formula identify a jump, the buffer of images is downloaded and translate wirelessly back to the web.

In [5], The intension of the paper was to spot the foremost moral problems connected to the utilization of wearable cameras in analysis. An opposition studies going down in an exceedingly controlled environments, studies within the free captures knowledge from or concerning participates in their everyday surroundings. Wearable camera that take pictures and their activities over periods of your time. Pictures from wearable cameras even have the potential to provide LTM prompts for participants to self-reflect on their activities through interviews and diaries. "The camera could be a tiny device which will be worn round the neck or clipped onto covering. It's a battery lifetime of around ten hours, creating it possible for analysis participants to wear it for many of on a daily basis. The Narrative camera is an excellent smaller camera that takes a still image each thirty seconds and has a calculable battery lifetime of 2 days. Wearable cameras have the potential to assist with a spread of knowledge capture techniques through the power to support reflection and recollection, increase dependability of self-report, and validate different techniques. As results of potential enhancements to knowledge assortment, quality of analysis output could also be improved. This deserves more investigation on the worth to society of those improved ways. Wearable camera use could be a recently rising space of thought for researchers and this paper has tried to focus on potential problems which will be encountered. It's troublesome to provide a comprehensive set of pointers for managing cameras at this early stage of use. Instead ethics committees have to rigorously

performance. Since the size of camera is small, we cannot control the heat generated inside it above certain limit.

IV. EXPERIMENTAL SETUP

The chapter includes the experiment and simulation done using tools and the results showing the improvement done by modifying the existing approach in terms of changing parameter and function modification which give the better accuracy and performance. WPA_SUPPLICANT is a text file that lists networks and security policies including pre-shared key. The use of WPA_SUPPLICANT here is to connect mobile and docking station via hotspot.

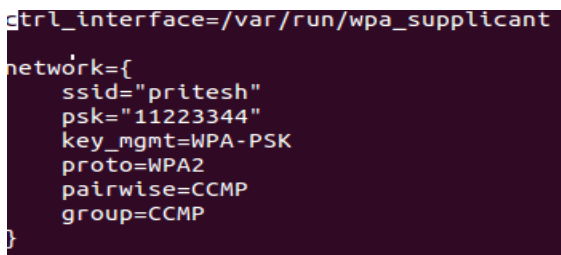


Fig. 1. Wpa supplicant interface

[illegible]

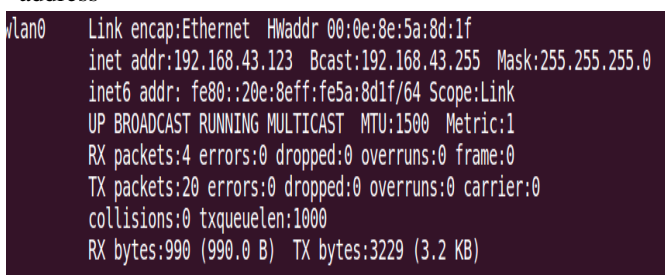
Fig. 2. Command line interface for AWS

The amazon web service command line interface is used to upload text file to S3 bucket. In this command line interface `aws_access_key_id` and `aws_secret_access_key` must be write in command line interface.

V. SIMULATION RESULTS

The output of experiment is that whenever will switch on the hotspot from mobile phone and if connect it with system's Wi-Fi. Once it gets connected it will display the IP address of the mobile phone which is connected.

Fig. 3. whenever hotspot connected to system display IP address



The output of amazon web service command line interface is to check successful upload file on amazon S3. Output.txt file is successful show in AWS S3.

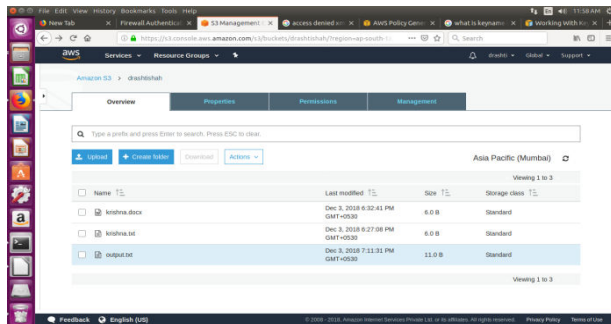


Fig. 4. Successfully uploaded files on aws

To upload all videos on AWS, first check folder is available or not in folder all video files are there. The name of folder is DATA. In DATA folder all files are present like .txt and .mp4 but only .mp4 files are upload on AWS. All files are stored in data.txt then upload data.txt on AWS. Using c++ code first create bucket and then put objects into bucket. All .mp4 files are stored into bucket.

Fig.5. Folder is present or not and folder in files are available or not

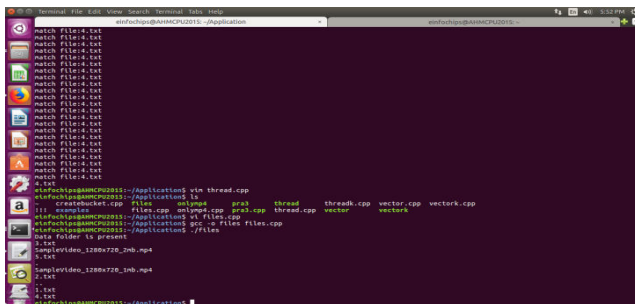
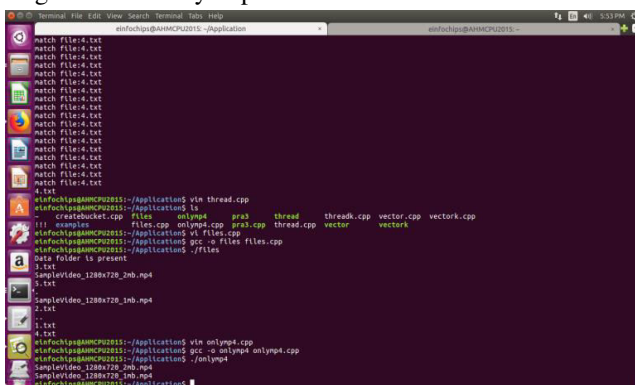


Fig. 6. Show only .mp4 files



VI. FUTURE WORK

In future, we can try to implement the design such that we do not require docking station for transferring the videos from camera to mobile phone. Instead of this, the videos are directly transferred from camera to phone using Wi-Fi. For this one can implement this design that Wi-Fi is directly inserted in camera.

VII. CONCLUSION

The work conferred here is to advance IoT Enabled Wearable Camera that camera is used to capture video and a few special moments where hand-held camera can't be used. With the help of Wi-Fi, stored videos will be directly

uploaded on the cloud. In this automated generation, to make users work easy, whenever the camera will be connected to the Wi-Fi hotspot it will automatically upload data on cloud. With the use of mobile application we can directly take video and audio from cloud. Also transfer video and audio to other user with the use of mobile application.

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