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Implementing the motion-based video clipping algorithm for monitoring surveillance video streams

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ABSTRACT

Communication is exchanging or transfer of the data so that the internet of things is but something like transferring of data or things or we can say exchanging several things. The use of authorized systems from the help of the internet is calculated as by 2020 that there will be the availability of billions of systems all around. The objective for the project shall be defining safekeeping alert system of devices by taking care of the power-related aspects by the internet of things.

Keywords— IoT, Raspberry Pi, Pir Motion Detection Sensor, Peizo Buzzer, Web Cam.

1. INTRODUCTION

Communication is exchanging or transfer of the things or we can say exchanging several things. The use of authorized systems from the help of the internet is calculated as by 2020 that there will be the availability of billions of systems all around.

The objective for the project shall be defining safekeeping alert system of devices by taking care of the power-related aspects by the internet of things that shall help mainly to the one who observes it all and shall alert whenever gestures or the motion where cloud server shall receive images.

Hence, aspects that are related to the internet of things shall be made use rigorously and henceforth set of actions shall get observed too. A warning shall be gotten whenever any gestures or indications shall be made. Raspberry Pi that is as small in size as of a credit card is used.

2. LITERATURE APPROACH

Towards the Implementation of IoT for Environmental Condition Monitoring in Homes: In this paper, the author has reported an effective implementation for the Internet of Things used for monitoring regular domestic conditions by means of low-cost ubiquitous sensing system. The description of the integrated network architecture and the interconnecting mechanisms for the reliable measurement of parameters by smart sensors and transmission of data via the internet is being presented. The longitudinal learning system was able to provide

a self-control mechanism for better operation of the devices in the monitoring stage. The framework of the monitoring system is based on a combination of pervasive distributed sensing units, information system for data aggregation, and reasoning and context awareness.

D. Surie, Wireless sensor networking of everyday objects in a smart home environment: Here, ZigBee technology is used. So here based on ZigBee, the paper is designed as such. The technology is designed by technocrats and the ones who have designed this have viewed the WSN technology rigorously.

The internet of energy: A web-enabled smart grid system: The IoT technology is used here were based on the technology the paper has been designed. The design of IoT network related technology is made use of that shall have and make use of the grid system.

A pilot study: Development of a home automation system via Raspberry Pi

3. PROPOSED WORK

The objective for the project shall give a description for safe-keeping devices.

3.1 Advantages

- Efficient storage of surveillance data.
- MQTT(Message Queuing Telemetry Transport) protocol
- Solves Burglary and theft issues.
- Ensures a secured environment.

4. SYSTEM ARCHITECTURE

This shall be an interface used to be designing the system related design and the broader aspects and perspectives that are relevant to the design aspects.

This is broader perspective shall come up with a definition like – “Blends the perspective of marketing, design and manufacturing into a single approach to the product development”. System architecture is shown in figure 1.

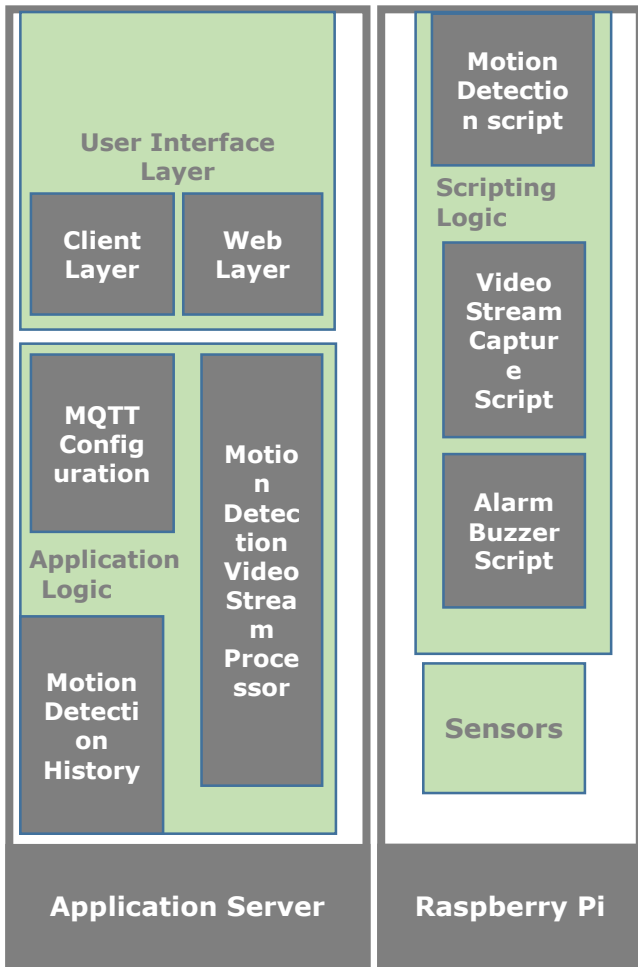


Fig. 1: System architecture

5. MOTION DETECTION

There are several methods and techniques that have been used to track motion activities and detect them such as calculate move, get the centre of gravity, and find the centre of gravity as follow:

5.1 Calculate Move

Calculate move refers to the calculation of motion. It takes a new frame as input. It checks if the current image is not equal to empty, it stores the data from the current image into the previous image, new frame captured in the calculate movement will be stored in the current image. Then it compares the previous image with the current image. If there are any similarities it would be trimmed out. If there are any dissimilarities between them then it would be stored in a different image.

$$\text{diff} = (\text{prev_COG_point.x} - \text{current_COG_point.x}) + (\text{prev_COG_point.y} - \text{current_COG_point.y})$$

In the obtained diff image the cog would be pointed.

5.2 Find centre of gravity (cog)

Centre of gravity is obtained by calculating the motion. If a number of pixels is greater than the threshold, then the major motion will be captured. If it is less than the threshold it captures minor motion.

```
xcenter = FIND_CENTER_X(diffImage);
ycenter = FIND_CENTER_Y(diffImage);
return new Point(xcenter, ycenter);
```

5.3 Get the centre of gravity (cog)

It gives multiples cog points. If the length of cog points is zero, then it returns empty. Else it calculates the sum of x and y-axis point by giving a new point.

6. TAXONOMY

6.1 MQTT

This shall be controlling the segregation of the data and how it's actually distributed. MQTT makes small attempts for the communication to get established and henceforth the data transmission occurs henceforth. It shall make many tasks as priorities of publishing and the subscribing of the data elements basically.

This shall basically do the publishing as well as the subscribing for the client and server as such when required. MQTT protocol and the MQTT broker will be enabling the session layer basically. It shall also enable IoT related norms and the rules and regulations as such.

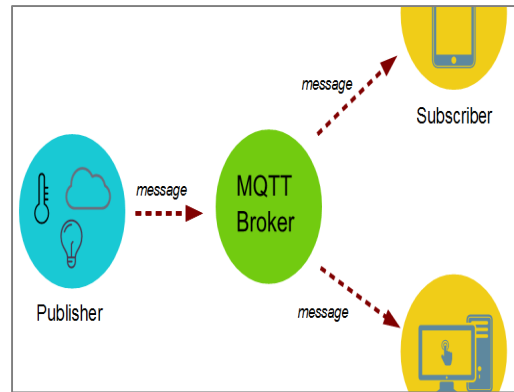


Fig. 2: MQTT

IoT shall contain a network of networks, wherein, basically, internet shall mean it's a network of networks. This domain is breaking the age-old used norms and it's a booming industry that's gotten the whole industry by control.

As of today, 100's of places shall be connected and transmission of data occurs. Almost around 32.7% of systems around the world shall twine around IoT.

7. EXPERIMENTAL SETUP

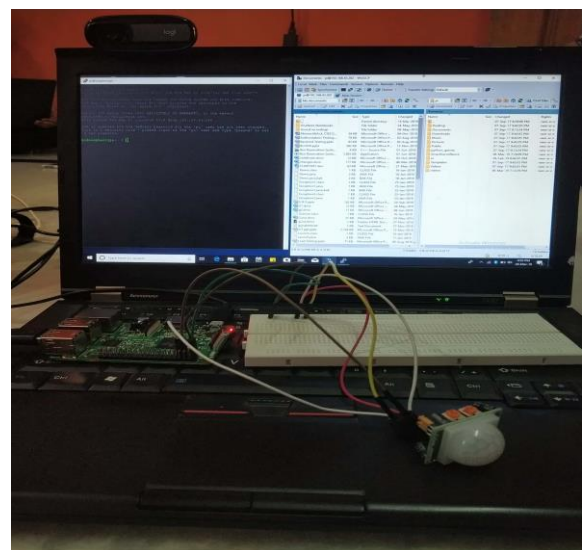


Fig. 3: Experimental setup

8. CONCLUSION AND FUTURE SCOPE

Hence we conclude that IoT surveillance is very much useful for home surveillance as well as for the much bigger applications to. The storage space is reduced very much and hence we can conclude regarding the storage-related aspect.

Future wise this is a booming industry and IoT surveillance shall monitor all the aspects for all of the technologies basically and help the society to deal with all the advanced technologies altogether.

The objective for the project shall be defining safekeeping alert system of devices by taking care of the power-related aspects by the internet of things that shall help mainly to the one who observes it all and shall alert whenever gestures or the motion where cloud server shall receive images.

9. REFERENCES

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