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Implantable network advertising video marketing based on FPGA and Sobel Algorithm

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ABSTRACT

Implantable advertising is called implantable marketing. It can also be understood as a soft ad or hidden advertising. Referring to that product or brand and, newspapers, magazines, online games, cell phone messages and other carriers, through scene reproduction of the brand or product, so that the media information, at the same time, they can unknowingly leave the impression on the product and brand, and then to achieve the purpose of marketing. Therefore, the development of the market for the advertising industry is growing to find new ways of advertising to attract people to become the pressing current challenge for advertisers. New trends in various film and television widely implantable advertising, a quiet and peaceful way has entered our views. Through the development of implantable advertising, promotion and new media video advertising for various products to be introduced to the brand message, leading to the market for digital advertising. Thus, in a video advertising system, the function of each ad is the opinion of the numbered requirements. The system must be completed by their contract to meet the requirements of advertising contracts end play count play. Some ads may appear to reduce other costs allocated for a significant number of comments. This article uses the concept of maximizing the utility function of various advertisers, noting that ad placement in the display order and fairness of the terms. Experimental results show that this method has validity and fairness of the whole system and has a great advantage for all advertising.

1. Introduction

Implantable electronic devices are not only more efficient, more powerful, and are aging miniaturization. Cooperation with the human body sensor group is the main component of the area network to the body which the wireless sensor network is applied to the human body. The details of the issues that must be addressed in the development of these networks ultimately presents a method for mobility carried sensors. Promising and viable communication strategies are reported as such for human communication (IBC) and ultrasound (US). Initially, this is configured with a system host living tissue as a conductive medium for electrical signals carrying data. The second is based on the mechanical wave with a frequency of more than ultrasound to receive a low tissue absorption. Radio frequency (RF) is the most widely implemented communication method. Accordingly, this section will focus on the sensor with RF wireless communication. Passive and active RF communication method is presented in examples of devices that rely on them.

With the rapid growth of the national economy, the development of information and telecommunications, automotive multimedia services are becoming more and more common [1] in recent years. It is highly flexible, for the following reasons: For the fleet, through mobile Internet devices (MID), and it is usually installed in the Wi-Fi play video ads to earn profits. For advertisers, it is submitted to video advertising fleet to promote their products and improve. To capture the passenger travel time and to catch up with them to promote their interest.

Web interface. Each ad has a video needs to clarify its general comment and duration of the contract period. For example, an advertiser plans to play 30 seconds of video per week with 7,000 orders ad, and the fleet decides whether to accept it or not. If you take your order, the corresponding video ad, or MID, which is unlocked and stored on a central server. After accepting the whole fleet advertising, the contract has been established, so it must meet all the requirements to announce the number of views for the period of the contract. Otherwise, you are in breach of contract.

For the right ad, the schedule is essential. Order to show some issues that need to be considered in the scheduling process, such as determining the carrying advertising business to set ad breaks and

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arrangements. If we do not pay close attention to these problems that may appear in the ad views, unfair distribution. Some advertisers are reducing others to allocate more advice. Therefore, the probability of a violation of the contract will increase. In addition, advertisers are sensitive to play a number of requirements. If less than the amount you need, the real vision of advertising is that the advertiser will feel very unhappy, probably reluctant to work with the same fleet in the future. This is a serious contractual issue. The fleet is proposing some remedies to compensate for inadequate numbers. The current view of the announcements in the case is more than the contrast you need a few, and we are pleased with advertisers and renew its contract with the same fleet.

Maximize total utility. We also conducted a series of experiments to simulate real-world data and the whole system and finally show the results of performance testing of our method. Paper is as follows. Related works in the second quarter is under investigation. Section III presents a formulation problem model system. Section IV provides a model based on the scheduling algorithm video advertising effectiveness system. Shows the experimental results. Finally, Section VI summarizes this article.

2. Related works

It has been widely studied i.e. utility-based scheduling mechanisms in the literature. In [1] it is applied to the concave utility for representing the performance of a particular resource QoS flow, which is considered the best-effort traffic in a wireless network model received by the user function. They have demonstrated a dynamic weighted fair queuing, thereby achieving high system throughput weighting and tune to channel conditions. Popular these days, but it is not feasible to obtain a best-effort traffic account.

It has been widely studied utility-based scheduling mechanisms in the literature. [2] has been applied to a concave utility model to represent the best effort QoS service performance received by a user of a particular wireless network's capabilities, and the resource is considered to be better. Thus, they provide a high weighted tuning system throughput and channel conditions, indicating the dynamic weighted fair queuing.

In [3], the authors propose the channel quality based on the utility power control mechanism. Like the S-shaped utility function, it has been applied to different service modes different QoS requirements. Lagrange emission reduction technology development has limited available power resources to maximize the total utility and the approximate global optimal solution.

However, specifically, the system tends to provide users QoS requirements than expected, increasing the performance and QoS resources as a marginal instrument quickly. Instead, the user has a higher QoS requirement to improve treatment of the small difference in performance, since many resources. To address this phenomenon, [4] the author defined a new objective function, take a fair rate to optimize system performance for account purposes.

In [5], the creators, high need calculation and huge assets gave to the client needs a remote organization system, in light of the reasonableness strategy recommended by the mutual connection limit. Improvement. Fourth Generation Long Term Evolution (4G-LTE) framework, the [6], the creators expand utility items. We found that it is conceivable to accomplish decency among flexible and inelastic traffic.

Communication marketing and selling products on the market, is one aspect that can be used as a benchmark in determining the success of the competition with other products that offer similar promise. Before moving to market communications, you need to understand the concept of the "communication", "marketing". Ruben Stewart [7], the group to adjust, such as those of the environment, organization, and community as individuals' process to create, which is in contact, transmission, and to define the communication of usage information.

For each Fisk [8], which is divided into the idea that communication generates a communication, the transmission is considered significant exchange messages, and the communication is translated into two schools. From these two definitions, it can be concluded that the communication concept is the sender of the message consisting of the message itself. The process of delivery of the message is the recipient of the message and the media used. Shrimp have then pointed out that sales [9] Communication is an essential aspect of a company's overall mission, the determinants of its success goals.

Some of the previous explanations on consumer behavior and time (external factors) is to support the state's development, especially the flow of information to make changes to consumer behavior [10]. However, as in previous models, it must show an element of concern and interest in the AISAS model to create real public interest [11]. Being consumer products, providing an interest search element and sharing the action taken are needed.

This study reviews the video blog uploaded a video blog to promote specific products. Although VLOG is a subtype of the blog, it has its unique content, such as [12] audio and video. Therefore, VLOG has the potential to communicate more detailed information and products. Environment due to the huge amount of data being generated due to spread of information technology. It was observed that the daily information that occurs at the beginning of [13] is "known for a part-time 2.5" improved IoT.

Therefore, by introducing a new data-oriented approach to promote strategic, rapid technological development, and accessibility of their global distribution, we generate a monetary profit outlook [14]. A practical method is to obtain valuable information from the data set needs. We have a constant variation in the data set different subjects generated daily. RNN has the ability, through the use of an internal memory unit, to process any input sequence of time-series study.

Digital marketing is becoming effective accumulated gain leverage on the company and its network [15] natural reaction. Digital marketing as a marketing part of the system and deployment plans are used by different organizations: businesses, hospitals, schools, professional associations, parliaments, and non-governmental organizations. Some of them still have their well-known e-commerce sites on the Internet and are often used to run on their channel communication mechanism.

In 2019, Miklosik and so on. [16] We focus on three different sets: "The media companies, advertisers, and advertising business" and how to choose and use analytical tools to learn motor drives.

The authors found that some comments, such as (), lights up when the screen to create and deploy marketing mechanism, analysis tools, play an essential role, (b) is (C, artificial intelligence and machine) [17]. We need more knowledge to develop methods, such as learning algorithms and efficient implementation tools of machine learning, machine learning, and marketing-driven analysis of low use and management tools (d) the adoption level. Analysis, including artwork and promoter of the framework established in the development, assisting in the organization, machine learning tools are introduced to opportunities and execute digital marketing with the project's success.

In 2019, Kim and so on. [18] Recognizes the current state of DMC's influential analysis offers an operational definition of the DMC scope to represent the shape of influential works. Published papers in the core 12 years are evaluating the "DMC- relevant journals" to complete. The assessment that the co-citation analysis and reference materials provided by the "target of 141 journals in the number of 5865 citations." I then suggested that the opinion's theme and has provided the best in developing effective DMCs recommendations academic and practical results.

In 2018, McKay et al. [19] using Twitter as a detection precision marketing and participation "HHS opioid CODE a sound event" as a means of introduction and deployment of machine learning and sale of fraudulent online sellers opioids methods. So the intention CODEa, hue, and tweets from Twitter's public application programming interface for the typical "prescription opioid keyword" a combination of the collection.

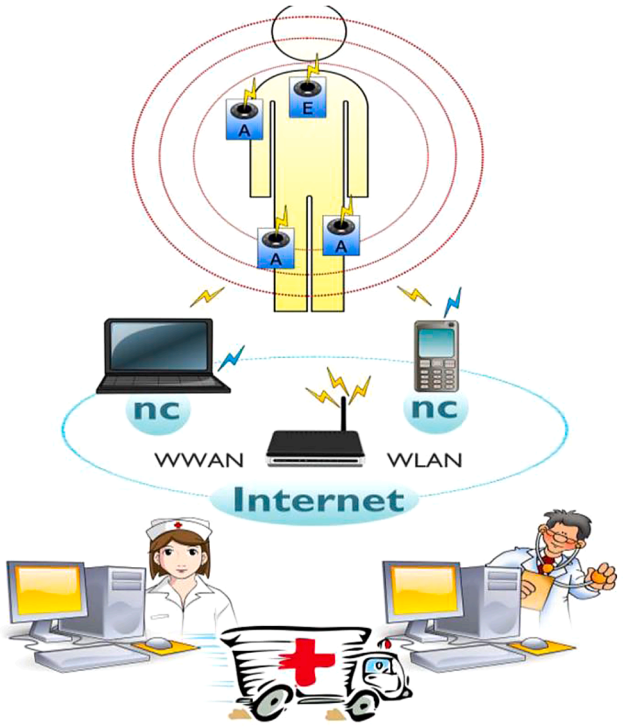

Fig. 1. Implantable network architecture.

CODE - the tone of the game [20], "unsupervised machine learning model," was introduced to obtain an overview of Twitter's relevant information content, those separate sets of criminal networks, and marketing links BTM. Adopt. Once we isolated the relevant micro-Bo, to analyze these tweets and hyperlinks, the ability to assess illegal Internet sellers [21]. The "Categories include codeine Percocet, Vicodin, OxyContin, oxycodone, fentanyl, hydrocodone, and" 213041 beep tone codes the cycle analysis. The data set is assigned a range of the scaling data as inputs to the normalization phase. Once the data is normalized [22].

3. Proposed methodology

3.1. Implantable process

Must be operating in a step-by-step adaptive advertising agency. It may be appropriate to minimize the risk of financial advertising by agents, and even change the partial difficulty throughout the ads affecting a strong agent so that the advertising industry can get the fit, the agents can give the bridge role full play and more healthy and sustainable development.

The ultimate goal of advertising is to forget about accepting the brand as a public product while implant advertising is a means of marketing, while its target population is the consumer. It is therefore important to take into account the opinion of the consumer after implanting the ads. Of course, there are different types of feedback, be it network research, issue questionnaires, street visits or following network or cell phone text messages and other means to carry out investigations. Although survey results can cover all views, advertisers can also learn from the success of more relevant ads (Fig. 1).

3.2. FPGA Implementation of convolution

The last FIFO becomes a "push" information in the FIFO is loaded with information is entering another chance to enter the sport of information, each column. It will be moved to the image with the right bank, 5 × 5 window associated. You move the window to the next window when there is the last line of each column's information. Slide left to continue along this right at the top of the image window pixels long last.

The application field programmable detection matrix door edges shown in Fig. 2. Each 1, In this design, can process a 500 × 500 grayscale image from a database on a personal computer and use the three times of 3 convolution kernel. In this system, various signals are present: CLK is a clock signal, the data input is the pixel signal of the grayscale image, the result is to generate data that is the result of the edge detection operator signal, data intermediate this is a signal.

FPGA edge detection is based on the most the general semantics of a gradation discontinuity detection methods. This is the gradient operator, uses the most common type of edge detection sub-process. Gradient vector will have a magnitude and direction. It is defined the image gradient vector (X, Y) and as F (X, Y). Direction of maximum rate of change of the gradient vector coordinates F (X, Y). An important amount of edge detection is the magnitude of this vector.

$$f\ (x,y) = \frac{\pi}{2\partial^2}\left[1 - \frac{x^2+y^2}{\pi\delta^2}\right] \tag{1}$$

$$f(i,j) = \sum_{(k,l)} f(k,l) - f(i,j)] \tag{2}$$

$$\nabla^2[G(x,y) * f(x,y) \tag{3}$$

Gaussian function as (4).

Edge detection point $f(x,y)$out gradient vector in the direction of the maximum rate of change, critical amount is the magnitude of this vector.

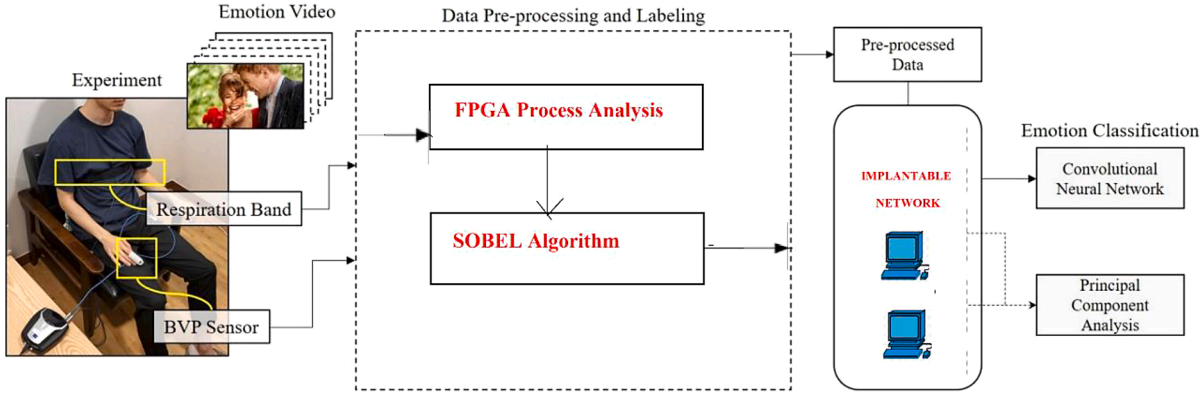

Fig. 2. Implantable network proposed architecture.

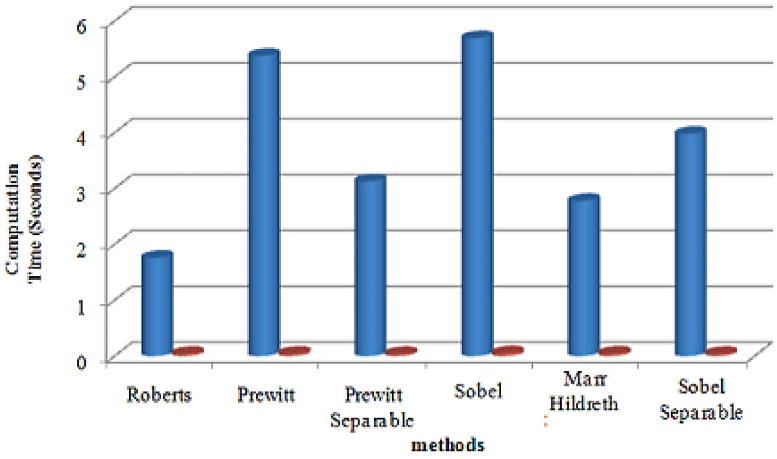

Fig. 3. Sobel algorithm video processing performance.

3.2. Sobel algorithm

Image segmentation is critical in Applied field of image processing, was acquired or interest extracted image Lee standard test Li di E down preparative co emission peak-menu data analysis or al features of region. Based on the pixel image,it is sliced into a plurality of regions of specific characteristics. There are two semi-automatic and automatic image segmentation rich literature.

$$G = \frac{\pi}{2\pi\partial^2} + \left[- \frac{x^2 + y^2}{2\partial^2} \right] \tag{4}$$

$$G = \frac{1}{\pi\partial^2}\left[1 - \frac{x^2 + y^2}{2\delta^2}\right] \tag{5}$$

$$G = \frac{1}{\pi^2}\left[1 - \frac{x^2 + y^2}{2\delta^2}\right] \tag{6}$$

$$G = \frac{1}{\pi^2}\left[1 - \frac{x^2 + y^2}{\delta^2}\right] \tag{7}$$

4. Result and discussion

Must be operating in a step-by-step adaptive advertising agency. It may be appropriate to minimize the risk of financial advertising by agents, and even change the partial difficulty throughout the ads affecting a strong agent so that the advertising industry can get the fit, the agents can give the bridge role full play and more healthy and sustainable development.

The ultimate goal of advertising is to forget about accepting the brand as a public product while implant advertising is a means of marketing, while its target population is the consumer. It is therefore important to take into account the opinion of the consumer after implanting the ads. Of course, there are different types of feedback, be it network research, issue questionnaires, street visits or following network or cell phone text messages and other means to carry out investigations. Although survey results can cover all views, advertisers can also learn from the success of more relevant ads.

To obtain a significant increase in utilities, MTU advertisement selection, and play count following claims. As a result, the actual number of selected ad views will significantly exceed the need, however, with the high requirements of playing advertising abuse. More than MTU, RS provides better performance because the ad is selected uniformly in the playlist. For this reason, the difference between the actual numbers of views on advertising is very small. When scheduling playlists, R.S. does not consider the requirements of different views of the ad, so you can easily achieve your advertising requirements below.

Higher utility with high demands are ensured. There is still an unfair situation. Instead, it is far more convenient than a video ad, but to generate playlist tools, we first use the following method, we consider each ad I noticed fairness useful. Besides, our approach is to select the effective use of repeat advertising revenue. Accordingly, the UBS method is beyond the MTU and R.S. programs and experimental results is near optimum. The average utility change per ad is approaching on October 21 from September 27, between 4, the same the difference in high play count requirements.

We analyze each ad request's effectiveness affects the number of observations on September 28, 2014, in the range of opinion in 1000~140000 requirements. If the actual number of views than the more demanding, advertising effectiveness is 0.5 or more. To get closer to the MTU and R.S. ad play count requirement may be higher than those with higher utility requirements. We ensure that five advertisers were not satisfied with 14 at MTU and R.S. In addition to meeting all advertisers.

Fig. 3 shows another feedback cycle under each ad and the average utility of our approach. The server is based on the feedback it receives, then every ad that ad inventory of the number of cumulative drama. The server receives feedback more often and creates a more accurate and better arrangement playlist. Accordingly, the system achieves higher performance.

Interestingly, the clear between these three different sets its feedback cycle, because it allows the server always to have low utilities every time you receive a new message in a heartbeat to make up for advertising. There is no difference. From this result, we need to send feedback to each MID only to carry the service side, because it not only perform as well.

5. Conclusion

With the development of commodity economy, the market competition is becoming more and more intense. More and more producers and operators need to carry out the promotion of goods by means of advertising. The implantable advertisement is favored by advertisers because of its unique personality. We use the S-type utility function expressed satisfaction with each advertiser for a various fixed number of ad views. Our goal is to increase through appropriate arrangements to maximize the overall effectiveness of all advertising. Implantable advertising has entered the period of rapid development, it is in the rising stage, has great potential, and the advantage is quite obvious. As a new way of marketing, it is the marriage of business and film and television works. The insertion of product information and service advertising will subtly instill brand image in the vast number of consumers, I believe, under the situation of the laws and regulations, the marketing

model is gradually being improved and mature. Implantable advertising will have a good development prospect and will become a boon to business growth through effective promotions.

Declaration of Competing Interest

The authors declared that they have no conflicts of interest to this work. We declare that we do not have any commercial or associative interest that represents a conflict of interest in connection with the work submitted.

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