Analysis of the Automation Telecommunication and How Works it

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ABSTRACT

The distribution automation system, should be the relationship between the different parts, this connection is performed by the telecommunication system. This study is based on a descriptive analysis and use of available resources to analyze automation telecommunication , and how it acted. Results indicated that collected information, tools and measuring equipment, as well as status indicators, this data includes voltage lines, switch status and key, and the temperature of the transformer and is, by means of relays digital, CT, PT, PI, or error detection, etc., collected, and for the electrical signal, is ready. The instrument is needed, to the various data collected, and ready to send. The device should be able to, such as terminal information act, and electrical signals different, the voltages and current levels vary in a range acceptable, and to send ready, and at the same time be able to signal receive operation also , to apply to the equipment, to reach the desired voltage level. The device, remote terminal units, or the so-called RTU, called. Telecommunication system, should be able to kind of adjustment between the data created. The data on the one hand, the path between the terminal and the control center to travel. Information, telecommunication system, some changes are to transfer from the environment to be prepared. These changes are known to act modulation. After sending the photo changes based on the signal, the signal becomes understandable message back into shape.

Introduction

Processes performed at various stages of the system, with different parts of the system communicate with each other is available. The distribution automation system should also be made of the relationship between different parts of the telecommunication by the telecommunication system, is performed. Considering the overall automation of visual telecommunication can be said, in automation, information from various sources received by a certain route to the control center, and after receiving the data, if necessary, the command signal from the same direction, at the appropriate place transmitted, and command execution is carried out. The role of telecommunication s in this process, clear and vital.

Starting work with data collection devices and measuring equipment, as well as status indicators, this data includes voltage lines, switch status, and keys at the trans ..., that is, by relays digital, CT, PT, PI, or error detection, etc., collected, and for the electrical signal is ready. The instrument is needed, to the various data collected, and ready to send. The device should be able to, such as terminal information act, and electrical signals different, the voltages and current levels vary in a range acceptable, and to send ready, and at the same time be able to command signals received as well, to apply to the equipment, to reach the desired voltage level. The device, remote terminal units, or the so-called RTU, called.

As mentioned, many types of RTU, collected, this information includes continuous quantities, such as voltage lines, as well as discrete quantities, such as the breaker is open or closed. Telecommunication system, should be able to kind of adjustment between the data created.

This type of sampling is done. Telecommunication system must be capable of various information, such sampling as a result, the data is consistent. The data on the one hand, the path between the terminal and the control center to travel, and during this process, with no errors not, for this purpose, environment, information from within the pass is determined, and then the system telecommunication s, are changed, and for the transfer of the environment, be prepared. These changes are known to act modulation. After sending the photo changes the signal, the signal carried the message back into shape becomes understandable.

Method

The research method in this study, according to the type of subject, descriptive and analytical. That, then recourse to primary sources and first-hand information for receipt of the study, compiled and collected. Depending on the topic, and the data collection, a library, which is largely based on references to primary sources, such as interpretation and translation is authentic. However, there can be analyzed, because its objective analysis on the automation telecommunication , and how it works, in different texts. Text commentary and discourse analysis, including ways in which to discover the different doctrines, are used. This study, based on extensive research library, the views and opinions expressed in books, articles and publications in the field of automation telecommunication , and how it has been dealt with.

Findings

Digital Telecommunication

Each telecommunication system, a set of components and electrical elements, and electronics that only the transfer of telecommunication signals is designed.

Each telecommunication system, in an idea, l should be able to receive incoming signals, and no change to its destination. Input signals, signals which, are carrying a clear message, the message, from a variety of analog inputs, and digital were received. For example, a statement by a man, expressed, or change the speed of an electric motor, or fluctuations in light intensity of a light source, all the information analog that, over time, constantly changing, and both continuous changes in their , a time interval is.

Elements of Digital Telecommunication Systems

Data source

Source of information, based on the nature of its output, analog and digital sources of information into two groups, divided, mentioned in the introduction. Digital data source (discrete), by the following parameters are determined:
1. The symbols (symbol)
2. The symbol rate (symbol rate)
3. The probabilities of the source symbols
4. The symbols statistical dependence in a string

entropy:

This index, average information contained in symbols, in a sequence of symbols states, units of bits per symbol.

Telecommunication channels:

Telecommunication channel in general, the duty electrical connection between the sender and the recipient is responsible. Channel may be a pair or a phone line, or vacuum or optical fiber, in all cases the signal carries information to be published in the canal.

Modulating and demodulating:

Modulating or modulator, (modulator), modulation action, then code the signal, and the signal input, performs the telecommunication channel. This part of the telecommunication system, they can be highly advanced equipment parts, is formed. In the receiver, equipment placed modulator performs the reverse operation, and signal and restore reveals, thus demodulator, detector and, said. Action modulation, properties, and methods of its results, are completely in the modulation.

Modulation (MODULATTON):

Modulation, hasn't a simple definition to introduce, nor can it be, with a stated formula. To understand modulation, the need for and benefits of the study, to the role and importance of follow-up, but for a simple introduction can say: "Modulation, set of actions that, the message signal occurs, the message signal with minimal distortion and error, and maximum quality in the receiver. "

Carrier signal (carrier signal)

As noted above, the signal transmission in telecommunication channels, interfaces with message signal that it depends on the message signal. This relationship, based on the change of message signal phase, amplitude or frequency of the transmitted signal, is expressed. Always in all the above cases, in addition to the message signal, another signal, which is produced at the beginning of the carrier signal or carrier, is known. In fact, the message signal changes the carrier signal generated, applied, and signal transmission or modulated, is created. Carrier signal, the frequency, and amplitude characteristics of its own. For example, in terms of frequency, the frequency, the more the message signal, as the signal transmission inquiry should be conducted, and the higher the frequency, the better the quality message. Of course, we will see an increase in frequency with increasing power requirements along with the will.

Synchronization (synchronization)

One of the most complex issues in designing telecommunication systems, the problem of synchronization, or synchronizing the receiver and transmitter. First to examine the question. In all modulations mentioned in previous entries and, in Modulations that, in the future we, Ian fact that, carrier signal either continuous frequency fc, and either discrete or pulse sampling intervals tm, the location of the message signal, sampled, and then the discrete samples, by filtering, and the rest of the circuit to continuously come in, and by the sender, into the channel of telecommunication are, and finally by the recipient, received, and at the same times that the transmitter has been sampling, re-sampling, and noise removal, and perform The photo, the sender filter action, information inquiry revealed.

Modulation QPSK:

In modulation PSK, phase change operation, the two signals that were done, the results for both 0 and 1 was enough. At present modulation, the four signal, the phase difference of 90 degrees, we define that, for this type of modulation, "the four-phase switching", or quadrature phase shift keying say. Tail input bits, in this case, for d1, d2, d3 come. In this way, the sequence based on the number of bits come in two parts divided, a bit over the first, third, fifth, etc., in each category, and bits which, in turn, numbered zero, two, four, six and ... come in different categories are, in fact, bits, based on the priority of the classes are divided into even and odd, respectively, which dI (t), including couples, and dQ (t) includes the individual.

Modulation GMSK:

In modulation MSK, we have to bits 0 and 1, the pulse half sine wave was used. In this modulation, a Gaussian filter, to produce a thin pulse we use. For this reason, this type of modulation, GMSK, or Gaussian minimum shift keying said.

Gaussian filter, a filter is the most widely used. The filtered signal that is, the power spectral density is relatively ideal, the main part of it is thin, and parts along with very low and small, so that the rectangular pulse, it seems ideal.

Coding, and the source decoder:

One of the most essential parts of the system, the code is. To explain this part, we discuss an example. Suppose, information related to the status of two digital relay installed in two positions, received, and the corresponding location by the telecommunication system, the center posted, had to change the desired mode, on charges command on or off, for a particular breaker being sent. This command, by radio, the air is released, and by receptors different in different positions received, in this case, command, by all breaker run, while we have this command for a breaker, especially post we had. Here the transmission and reception without failure took place, and in the absence of addressing the problem, and to identify the command.

Telecommunication methods

Radio systems

One of the areas of telecommunications, the transfer of signs, signals and free space, radio systems, the signal from the source to the destination, and vice versa transferred.

Microwave

Microwave radios, for many years, have been used in the power industry. These systems, generally in the 2 GHz frequency bands, have been high, and the various manufacturers in the country that offer.

Radio VHF and UHF

This radio, can be used to transmit data from substations to distribution centers in sub-used.

(Time ditision multiple access) TDMA

Radio systems TDMA, from a central station, and stations away, and in the absence of indirect vision, between the center and posts, the repeater is formed.

Radio system packet (packet radio system)

The packet radio system, telecommunication s are carried on one channel, and the need to skeletal high-capacity, and not a costly telecommunication s, and the message from origin to destination, the packet is transmitted.

Cellular radio systems

In cellular radio systems, the area covered, the number of small area, called a cell divides, for each cell, considered a center.

Radio modem:

Usually a source of data (dispatching systems), via an interface (standard RS232 interface is often), information to the DCE (data telecommunication equipment) that the modem is, leave.

Dispatching telecommunication needs of distribution and radio systems facilities

As previously mentioned, radio systems, in comparison with other methods of telecommunication , are Better known. Dispatching need for telecommunication distribution, use of radio systems, most accessible method, and a variety of equipment to set up a telecommunication system, extensive facilities to provide telecommunication s network designers, puts. But one should bear in mind one, is to create a network radio, in a region with an area not too high, and despite the various facilities of urban, devices and radio, at the regional level, should not be expected to be able networked unified and optimized, Gained.

Conclusion

Based on what was studied, it should be stated that, data collection devices, measurement and status indicators, this data includes voltage, current lines, switch status and key, and at the trans ... that , by digital relays, CT, PT, PI, or detect errors, ... collected, and the electrical signal is ready. The instrument is needed, to the various data collected and ready to send. The device must be such as terminal information, acted, and electrical signals different, the voltages and current levels vary in a range acceptable, and to send ready, and at the same time must be able, command signal received also, to apply to the equipment, to reach the desired voltage level. The device, remote terminal units, or the so-called RTU, called. Telecommunication system, should be able to kind of adjustment between the data created. The data on the one hand, the path between the terminal and the control center, travel. Data telecommunication system, some changes are to be ready for transfer from the environment.

This action changes the modulation, are known. After sending the photo changes based on the signal, the signal message again, the form becomes understandable.

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