

Detection of Tumor Using Antenna

Dr. Kundan Kumari

Guest Professor, Department of Physics, S.K. Mahila College Begusarai, Mithila University (India)

ARTICLE DETAILS

Article History

Published Online: 12 June 2019

Keywords

Antenna, definite absorption rate, current density.

ABSTRACT

The article will give concise information about the innovative technology of Antenna usage to resolve the issue of the Tumor. The antenna had used with the advanced technology which includes a system to detect the Tumor and will also help to cure such an issue. The process will include the information and description of the part with Tumor and non-Tumor condition. Further, the antenna gets connects to the part of the Tumor and determines the measure of the magnetic field, current density & specific absorption rate. These fields and absorption get rapidly increased if the part is a Tumor. Consequently, the antenna based technique defines the Tumor in the body.

1. Introduction

The human body currently facing a lot of disease and virus due to the change of lifestyle and climate change. The foremost tissue which is raising is the risk of increasing patients of cancer. This is the furthestmost convoluted syndrome which is rapidly increasing in the current world. The disease is most dangerous as it causes the patient towards death if they will not get the applicable treatment at the right time. The detection of cancer on early stage is most necessary as the detection is will determine the accurate process of treatment. In the initial stages the terminologies which have been used to identify the cancer were related to the x-rays, MRI, etc. these terminologies used the radar-based system to make the treatment of the disease. Initial techniques which have been formulated to cure the disease were expensive and also that was not possible to get those treatments by the time. The current innovation that is uses of antenna helps to make the justification about the whole issue of the specific area and it also provides the relevant information about the different techniques to cure such disease. The article will give brief information about the technology of antenna based Tumor deduction.

2. Research methodology

A research methodology is an approach which helps to make the determination about the justification of the topic. The research methodologies help to utilize in order to carry out the research in an appropriate manner. The current research is being done by taking into consideration of the technical terminology of implementing the antenna in the treatment of Tumor. For this research, there is a need for appropriate techniques, methods, and approaches for the collection of data. The inclusion of all such factors makes the research successful and produces appropriate results.

Research Approaches

It is very necessary to make a determination of the approaches of research that supports in the development of the research in a proper and effective way which will also be supportive in achieving the aims as well as objectives. Basically, two sorts of research approaches are there which are defined as follows:

- **Deductive research approach:** It is being used to give justification to the hypothesis of the research which is produced in the starting of the research. This research is based on hypothesis and proves one hypothesis true from a different set of hypothesis. The deductive approach of research is very effective for the selection and rejection of one hypothesis from various hypothesis produced by the investigator of research in the starting.
- **Inductive research approach:** This research approach is being carried out from the research questions and objectives that support in conveying research in a proper direction. It also helps in the development of new ideas which is suitable for the research project. The approach of research helps in formulating questions and objectives of the research for the development of new ideas and this makes it different from others.

As the particular research is on the uses of antenna for the treatment of Tumor. The both of the approaches will be used to make research as the deductive approaches will help to make the determination of appropriate hypothesis and the inductive approach will give the justification to data gathering techniques about the advanced technologies.

Research Methods

Research methods are being deliberated as the most significant part of the research methodologies which makes an impact on conducting research. There is the clarification of the research method below which can be defined as follows:

- **Qualitative research method:** This method of research is having a connotation with the paradigm-related with a social hypothesis which operates on the nature of reality which is developed socially. This methodology generally operates with the soft variables so it is very necessary to use it in the research topic where there is high involvement of soft variables. Soft variables are being defined as the behaviour, emotions, and feelings of a human with the involvement of elements in the research topic. This method of research operates on the individual's large

group for generalizing experience, thinking, and belief on paper.

- **Quantitative research method:** The quantitative method of research is having a relationship paradigm of positivism. It makes operation on the statistical calculations, which are necessary for the development of particular results. Deductive research approaches can be used applicably which supports in testing hypothesis from the general to specific one. The testing of the hypothesis can be done with quantitative methods of research by the congregation of numerical data and information in relation with the topic of the research which will support an investigator to make just over the implied hypothesis.
- **Mixed research method:** The mixed method is another sort of method of research in which there is the annexation of the individualities of quantitative and qualitative research methods. It functions on the soft as well as hard variables. It is necessary to be exploited in such research which is associated with human experience, behaviour, and emotions as well as numerical data. It also catches out the consumption of deductive and inductive approach of research which makes the establishment of strengths to study the topic of the research. In this research, there is the use of a mixed method of research to present effective outcomes.

The method which has been used to induct the research is mixed research method. As it will help to make the determination about the people interact with cancer and will also give concise information about the numerical analysis regarding the disease.

Research Type

In general, there are two types of research which are used to define and this is named as primary and secondary research. It is very essential to determine which type of research is a support to researcher and it definitely helps for the sources for put on in the research.

- **Primary research:** This research type is used for focusing on making the operation of the fresh and the new data in the research which help the investigator for developing the effective results. This primary research supports for gathering data and information for the research topic which is to be selected by the investigator. This research is taking the high prospective for making the establishment of the relevant and the original data that is related to the topic.
- **Secondary research:** This type of research used for the collection of the data from the secondary sources. The data which is already analyzed and collected by another researcher, organisation and from other secondary sources are used for the research. This is a cost and time effective method to carry out the research but it does not make provision of particular data which is one of the main disadvantages of this research

It is very necessary to make a determination of the type of research to carry out the study in relation to the detection of a Tumor using the antenna. Both the types of research will be essential to utilize in this research which will support the development of the entire study or research. The primary method will help to gather the information by the investigation of the researcher and the second method will help to implement the analysis of already existing information.

Data collection tools and techniques

Techniques of data collection are being utilized to have data from different sources, which is having the potential to satisfy the requirements of research. Methods of data collection are based on the research types which are utilized in the research and these are defined as follows:

Primary data collection method

- **Questionnaire:** It is necessary to use it in order to carry out quantitative research. A set of various questions are being designed by the researcher who is having a focus on the hypothesis of the research.

A secondary method of data collection

- **Books:** Authors are the experts of the field from where there is the collection of data in the research for the purpose of generating findings and outcomes. It is very necessary to make utilization of relevant and specific books which are having a relationship with the topic of research
- **Newspaper articles:** Magazines and newspapers publish such articles in which focus is there on a particular problem or topic. Coverage of newspaper articles is there under the reliable sources which support in taking authentic data into consideration.
- **Websites:** Government websites are being considered as the effective sources which must be used in the research and which is having the potential to make delivery of suitable data on the topic of the research.
- **Academic journals:** These kinds of journals are being published academy of education quarterly, annually or half yearly in which there is the publishing of various findings which are used effectively by the researcher if they are having a relationship with the topic of research.

As the main aim of this research is to study regarding the detection of the Tumor using an antenna. The secondary method of data collection will be used in the research. All the sources which are being described in secondary sources will be used for the purpose of making a valid conclusion.

3. Findings

The entire study is being conducted on the identity of the detection of the Tumor using the antenna. The findings of the research are the relevant approaches which can help to make the justification about the treatment of cancer. Cancer is the most dangerous disease and needs to have the appropriate treatment. This is determined that there is a large community which is not able to make the high expenses over the treatment so the treatment needs to be available on the affordable prices.

Another finding of the research is related to the different approaches which can help to use more advanced technologies to make the treatment of cancer.

4. Recommendation

This is recommended to the people to make themselves aware of the symptoms of the disease as this such a crucial disease and to make the justification about the symptoms is also very hard. As this is not necessary that people can make the determination about this particular disease. So this is most necessary for human beings to make aware about the disease. This is recommended to hospitals and doctor as well to make some campaign and awareness approaches which help the people to become more aware of the disease. This is also recommended to the doctors to make some programs in the lower class places as it will help the poor people also to make themselves safe and secure.

5. Conclusion

This is concluded from the research that cancer is the most dangerous for the current society. The rapidly changing lifestyle and the environment is making the conditions of hassle and also negatively impacting the human body. All of such changes are causing the probability of cancer. As the disease is increasing rapidly so the treatment is also most necessary to be implemented timely. The research had focused on the innovative idea to fight with the issue as the research had promoted to use the antenna to detect cancer. This is understood that there are so many techniques assess to remove such issue but all of the techniques are not much effective that is why the specific approaches have been discussed in the report. The report had informed about the research methodology which has been used to implement the idea. There was also brief information about different data collection techniques. And the report had also informed about the different findings and recommendations regarding the issue of cancer. Thus, the report had significantly informed about the innovative idea of cancer treatment that is the detection of the Tumor using the antenna.

References

1. Elizabeth, M.A., Ping, K.A.H., Rajae, N.B. and Moriyama, T., 2015. Chebyshev filter applied to an inversion technique for breast Tumor detection. *breast*, 15(17).
2. Islam, M., Islam, M., Faruque, M., Samsuzzaman, M., Misran, N. and Arshad, H., 2015. Microwave imaging sensor using compact metamaterial UWB antenna with a high correlation factor. *Materials*, 8(8), pp.4631-4651.
3. Jalilvand, M., Li, X., Zwirello, L. and Zwick, T., 2015. Ultra-wideband compact near-field imaging system for breast cancer detection. *IET Microwaves, Antennas & Propagation*, 9(10), pp.1009-1014.
4. Oliveira, B.L., O'Loughlin, D., O'Halloran, M., Porter, E., Glavin, M. and Jones, E., 2018. Microwave Breast Imaging: Experimental Tumor phantoms for the evaluation of new breast cancer diagnosis systems. *Biomedical Physics & Engineering Express*, 4(2), p.025036.
5. Rahman, A., Islam, M.T., Singh, M.J., Kibria, S. and Akhtaruzzaman, M., 2016. Electromagnetic performances analysis of an ultra-wideband and flexible material antenna in microwave breast imaging: to implement a wearable medical bra. *Scientific reports*, 6, p.38906.
6. Sadeghi, S. and Faraji-Dana, R., 2016. A Practical UBE Microwave Imaging System Using Time-Domain DORT for Tumor Detection. *Applied Computational Electromagnetics Society Journal*, 31(6).
7. Sindram, D., Simo, K.A., Swan, R.Z., Razzaque, S., Niemeyer, D.J., Seshadri, R.M., Hanna, E., McKillop, I.H., Iannitti, D.A. and Martinie, J.B., 2015. Laparoscopic microwave ablation of human liver Tumors using a novel three-dimensional magnetic guidance system. *HPB*, 17(1), pp.87-93.
8. Wang, X., Qin, T., Witte, R.S. and Xin, H., 2015. Computational feasibility study of contrast-enhanced thermoacoustic imaging for breast cancer detection using realistic numerical breast phantoms. *IEEE Transactions on Microwave Theory and Techniques*, 63(5), pp.1489-1501.
9. Xin, H., Namgung, B. and Lee, L.P., 2018. Nanoplasmonic optical antennas for life sciences and medicine. *Nature Reviews Materials*, p.1.
10. Zhang, H., 2015. Microwave imaging for ultra-wideband antenna based cancer detection.