# MEMBANGUN 3D *WEB GIS* INTERVISIBILITAS ANTAR MENARA *BASE TRANSCEIVER STATION* TELEPON SELULER DI KECAMATAN NGADIREJO – KABUPATEN TEMANGGUNG DAN SEKITARNYA

## ABSTRAK

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Seiring dengan perkembangan zaman kebutuhan teknologi khususnya di bidang telekomunikasi semakin meningkat sehingga banyak provider telepon seluler yang memperluas jaringannya. Untuk memperluas jaringan tersebut sebelum mendirikan tower BTS (*Base Transceiver Station)* perlu dilakukan analisis *line of sight* untuk mengetahui jarak jangkauan sinyal antar BTS. Analisis *line of sight* ini sangat penting dilakukan untuk meningkatkan efektifitas dari pancaran sinyal BTS tersebut terutama di wilayah yang memiliki variasi topografi beragam seperti kecamatan Ngadirejo.

*Web GIS* merupakan salah satu hasil dari perkembangan teknologi di bidang Sistem Informasi Geografi yang memudahkan informasi di bidang spasial diakses oleh banyak orang. Pembuatan *web GIS* tiga dimensi untuk analisis *line of sight* di wilayah Ngadirejo dilakukan dengan menggunakan *framework* milik GIScene.js dengan menggunakan fungsi *GIScene.Process.LineOfSight. Web GIS* "Analisis Interaktif *Line Of Sight"* ini akan mempermudah dalam perolehan informasi terkait intervisibilitas atau jangkauan sinyal antar dua *Base Transeiver Station* (BTS) berdasarkan faktor ketinggian menara dan faktor topografi sebagai penghalangnya.

Hasil pembuatan *web GIS* tiga dimensi ini memiliki fungsi utama untuk mendapatkan informasi intervisibilitas antar dua titik objek, salah satunya keterjangkauan antar dua menara *Base Transceiver Station.* Selain itu *web GIS* ini dapat digunakan untuk mengukur jarak antara dua titik yang dilengkapi dengan derajat arah orientasi antar dua titik tersebut. Wilayah Ngadirejo memiliki tujuh menara BTS yang memiliki intervisibilitas yang cukup karena lokasinya berdekatan. Terdapat satu BTS yang tidak terjangkau yaitu BTS Telkomsel yang berada di Giripurno dengan jarak 5,34 km.

Kata kunci : SIG, *web GIS, Base Transceiver Station, Line Of Sight.*

# BUILDING 3D WEBGIS INTERVISIBILITY FROM THE TOWER OF MOBILE PHONE BASE TRANSCEIVER STATION IN NGADIREJO DISTRICT AND SURROUNDING, TEMANGGUNG.

## ABSTRACT

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Along with the development of the times the need for technology, especially in the field of telecommunications has increased so that many cellular phone providers are expanding their networks. To expand the network before build up a BTS (Base Transceiver Station) tower, line of sight analysis needs to be done to determine the distance of the signal coverage between BTS. This line of sight analysis is very important to be done to improve the effectiveness of the BTS signal emission especially in areas that have variations in topographical such as Ngadirejo sub-district.

Web GIS is one of the results of technological developments in the field of Geographic Information Systems which makes it easy for information in the spatial field to be accessed by many people. The creation of a three-dimensional *web GIS* for line of sight analysis in the Ngadirejo region was carried out using GIScene.js framework using the GIScene.Process.LineOfSight function. *Web GIS* "Interactive Line of Sight Analysis" will facilitate the acquisition of information related to intervisibility or signal coverage between two Base Transceiver Stations (BTS) based on tower height and topographic factors as a obstacles.

The results of making this three-dimensional *web GIS* have the main function to obtain information on intervisibility between two points of object, one of which is the affordability between two towers of Base Transceiver Station. *Web GIS* can be used to measure the distance between two points which are equipped with the degree of orientation direction between the two points. The Ngadirejo area has seven BTS towers which have sufficient accessibility because of their proximity. There is one BTS that is not reached, Telkomsel BTS which is in Giripurno with a distance of 5.34 km.

*Keywords: GIS, web GIS, Base Transceiver Station, Line of Sight*