



## HINDRANCE OF FRINGES USING MODIS DATA MODEL

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## Abstract

*Road side platforms are occupied by the people for their own purposes such as extending buildings, parking of vehicles. This system aims to monitor and detect the road side platforms from being occupied by the people without authorization. It implements the Geo-spatial portal which is considered as one of the best applications in Geographic Information System(GIS) domain. Web mapping, a component in geo-spatial web, has been the long term task in GIS communities and these web mapping components are also diversifying. The implementation of the land monitoring portal is the main task. Land monitoring portal is composed of several stages, aspects and scopes, as well as various users' needs from both content creators and consumers. In this work, the main subject is not the rationale or the principle regarding land monitoring, but the applicability of web 2.0 technologies in web-based land monitoring portals dealing with heterogeneous or multiple data sources, in the designing stage for integrated web-based land monitoring portals.*

**Keywords:** *Geographic Information System(GIS), Web mapping, Geo-spatial.*

## I. INTRODUCTION

Observations of road side platform are broader in cities and town areas. In most cases people may use to build or occupy platform areas for their own buildings with extended area space which is belonging to government. This system aims to detect and monitor those places on road side platform. It implements the Geo-spatial web portal which is regarded as one of the attractive applications from both users and providers in GIS domain. Especially, in the mash up theme using open API provided by general portal such as Google or Yahoo, web mapping application is the top-ranked one. However, web mapping, one of the component in geo-

spatial web, has been the long-term task in the GIS communities. The web mapping components for registering, manipulating, retrieving and publishing of scalable contents in the target-based application are also diversifying. Moreover, GIS standards are one of the crucial factor for web-based applications. The implementation of land monitoring portal, dealing with multiple sources and multiple types of data contents is the main task. Land monitoring requires the basic components of geo-spatial web portal with the functionalities like linking to other contents, accessing to actual data sets, metadata crawling, harvesting, as well as spatial querying and web mapping. Land monitoring portal is composed of several stages, aspects and scopes, as well as various users' needs from both content creators and consumers. In this work, the main subject is not the rationale or the principle regarding land monitoring, but the applicability of web 2.0 technologies in web-based land monitoring portals dealing with heterogeneous or multiple data sources, in the designing stage for integrated web-based land monitoring portals

## **II. LITERATURE SURVEY**

**[1]. Comparison of variations in sea-ice formation in the weddell sea with seasonal bottom-water outflow data by M.R. Drinkwater ,Xiang Liu ,D. Low in Geoscience and Remote Sensing Symposium Proceedings, 1998. IGARSS '98. 1998 IEEE International**

Seasonal and inter-annual variability of Antarctic sea-ice formation is observed using ERS-1 satellite microwave radar in the Weddell Sea. Time-series from six Antarctic regions with recurring ice-shelf systems indicate relationships between the timing of seasonal peaks in measured bottom water outflow and ice formation rates. Results provide evidence about the critical periods of high surface heat fluxes and clues to primary brine production locations.

**[2]. Stimulation of thin ice thickness from the advanced microwave scanning radiometers for coastal polynyas in the chukchi and beaufort seas by rajkumar kamaljit singh , sandip rashmikant oza in IEEE transactions on geoscience and remote sensing ( volume: 49, issue: 8, aug. 2011 )**

A thin ice thickness algorithm for coastal polynyas in the Chukchi and Beaufort Seas has been attempted which uses the Advanced Microwave Scanning Radiometer-Earth Observing System (AMSR-E) 89-GHz brightness temperature data at a 6.25-km resolution. Thermal ice thickness estimated from the Moderate Resolution Imaging Spectro-radiometer (MODIS) ice surface temperature data for a set of control points is used in conjunction with the AMSR-E brightness temperature data to develop a regression relationship between the thermal ice thickness and the passive microwave polarization ratio. The MODIS thermal ice thickness has been determined from the calculation of conductive heat flux through the ice-air interface.

**[3]. Retrieval of sea ice thickness of ross sea with icesat/glas measurements by Xiaodong Wu, Ling Du, Fei Huang in remote sensing, environment and transportation engineering (rsete), 2011 international conference**

The surface elevation from ICESat/GLAS measurement of three campaigns in February and March of 2004-2006 is applied to retrieve the sea ice thickness in the Ross Sea. Sea level pressure, SSM/I snow depth, and ASPeCt ship-based observations are used to improve the estimation method. The retrieval result is proven reasonable compared with selected ASPeCt data. The spatial distribution shows geographically non-uniform in the mean FM sea ice field of the Ross Sea. Thicker ice is found in the eastern Ross Sea, about 2-3m, areas near Ross Island and the central part illustrate thinner thickness. Ice thickness shows significant inter-annual variation, which exhibits synchronous spatially. Sea ice is thickening dramatically

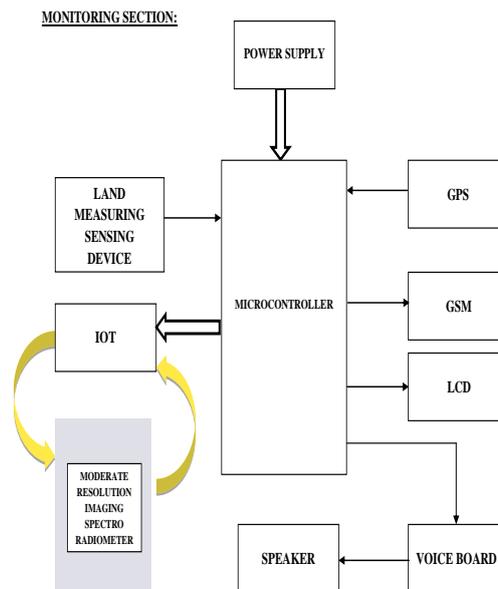
during the three FM periods in the selected regions, especially in the western Ross ice shelf front (FIS).

### III. EXIXTING SYSTEM

There are several methods such as LANDSAT, Land-cover change detection, Latvia, Digital change detection technique to monitor the land space but there is no method to monitor the road side platform also there is no alert system to intimate the higher authorities to prevent people from hijacking road side area for their own purpose. Retrieval of occupied fringe may leads to wastage of manpower and resources.

### IV. PROPOSED SYSTEM

In this system the systematic alert is given to user (people) and the Government municipal officer if the road side (platform) is occupied by the particular people without getting the permission. The occupied fringes from the people causes reduction in width of the road and road side platforms. It derives data from Moderate Resolution Imaging Spectro-radiometer (MODIS) to view the particular fringe.



**Fig 1.Architecture Diagram**

The land measuring sensing device gives the input to the controller. If the distance obtained is below the threshold, the GPS location of the system along with the distance obtained is sent to the monitoring section through IoT. GSM module is also used to send a message to the monitoring department. A voice board is in-order used to alert the public and the concerned person about the occupied area.

The benefits of this system is providing alert if someone tries to takeover platform areas. It also provides the GPS location of the occupied space to government officials.

## **GPS**

The **Global Positioning System (GPS)** is a U.S. space-based global navigation satellite system. GPS satellites broadcast signals from space that are used by GPS receivers to provide three-dimensional location (latitude, longitude, and altitude) plus the time.

This system uses GPS to provide the location to identify. In case any roadside area is being occupied then alert is being sent. On receiving this alert message the GPS tracks the location and sends the tracked location details to the concerned person. It tracks the area that is getting occupied and also the authorization members who are near by. This location details will also be stored in the server.

## **GSM MODEM**

A GSM modem is a wireless modem that works with a GSM wireless network. Wireless modem sends and receives data through radio waves.

This system uses GSM to send message to the concerned person in order to prevent roadside area being occupied. GSM helps in sending the signal throughout the entire network. The location details which were found are sent through this module.

## **LAND MEASURING SENSING DEVICE**

The land measuring sensing device gives the input to the controller. If the value obtained is below the threshold, the GPS location of the system along with the value obtained is sent to the monitoring section through IoT.

## **LCD**

This system uses Character based LCDs Hitachi's HD44780 controller or HD44580. The most commonly used LCDs are 1 Line, 2 Line or 4 Line LCDs which have only 1 controller and support at most of 80 characters, whereas LCDs supporting more than 80 characters make use of 2 HD44780 controllers.

The authorized member uses this LCD to view the data such as location of occupied fringes, type of object that occupies.

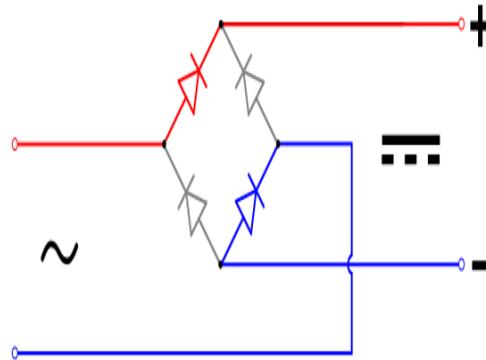
## **TRANSFORMER 230V/12V**

A transformer is a static electrical device that transfers energy by inductive coupling between its winding circuits. A varying current in the primary winding creates a varying magnetic flux in the transformer's core and thus a varying magnetic flux through the secondary winding. This varying magnetic flux induces a varying electromotive force (EMF), or "voltage", in the secondary winding.

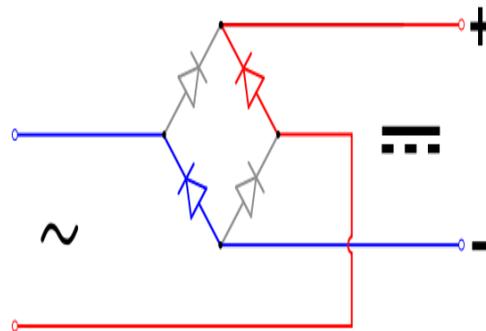
This system uses 5V power supply circuit using LM 7805 IC. It is a positive voltage regulator IC comes in three terminal provides fixed 5V DC output. This IC has many built in features like internal current limiting, thermal shut down, operating area protection.

## BRIDGE RECTIFIER

**Bridge rectifier** is used for conversion of an alternating current (AC) input into a direct current (DC) output.



**Fig: 2.a**



**Fig: 2.b**

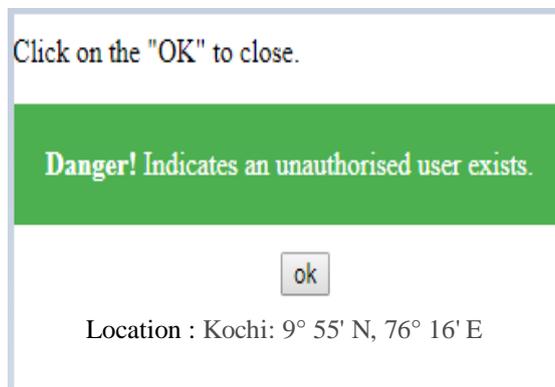
A bridge rectifier provides full-wave rectification from a two-wire AC input, resulting in lower cost and weight as compared to a rectifier with a 3-wire input from a transformer with a center-tapped secondary winding.

## V. FUTURE ENHANCEMENT

This can be used to implement drainage system under the platform properly. So that the ground water level can be increased. It also helps in prevention of flood during heavy rainfall. During heavy rainfall the water can flow through the underground pipeline without any flooding in residential area. This system also helps in implementing the underground transport facility in all area.

## V. RESULTS

This system shows the results in the form of alert message to the government officials as shown in the figure.



**Fig: 3**

This also shows the same alert message in the server in order to view what is the circumstances.

## V. CONCLUSION

This system uses MODIS Data Model to view the fringes. In case, anyone tries to occupy, an alert along with location details is sent in the form of message to the concerned authorities to take necessary action. Thus the platform width can be maintained. And it helps in preventing from heavy traffic. Parking vehicles in the unauthorized place can be prevented. This system creates impact for the economy as well as ecology.

## VI. REFERENCES

- [1] R. Ricker, S. Hendricks, V. Helm, H. Skourup, and M. Davidson, "Sensitivity of CryoSat-2 Arctic sea-ice freeboard and thickness on radar-waveform interpretation," *Cryosphere*, vol. 8, no. 4, pp. 1607–1622, 2014.
- [2] R. Kwok and G. F. Cunningham, "Variability of Arctic sea ice thickness and volume from CryoSat-2," *Proc. R. Soc. Lond. A, Math. Phys. Sci.*, vol. 373, no. 2045, p. 20140157, 2014, doi: 10.1098/rsta.2014.0157.
- [3] S. Nishida, K. I. Ohshima, T. Tamura, Y. Fukamachi, and S.-I. Saitoh, "Thickness and production of sea ice in the Okhotsk Sea coastal polynyas from AMSR-E," *J. Geophys. Res.*, vol. 114, no. C10, pp. C10025-1–C10025-15, Oct. 2009.
- [4] X. Wang, J. R. Key, and Y. Liu, "A thermodynamic model for estimating sea and lake ice thickness with optical satellite data," *J. Geophys. Res.*, vol. 115, no. C12, pp. C12035, Dec. 2010.
- [5] R. K. Singh, S. R. Oza, N. K. Vyas, and A. Sarkar, "Estimation of thin ice thickness from the advanced microwave scanning radiometer-EOS for coastal polynyas in the chukchi and beaufort seas," *IEEE Trans. Geosci. Remote Sen.*, vol. 49, no. 8, pp. 2993–2998, Aug. 2011.
- [6] T. Tamura and K. I. Ohshima, "Mapping of sea ice production in the Arctic coastal polynyas," *J. Geophys. Res.*, vol. 116, no. C7, pp. C07030, Jul. 2011.
- [7] K. Naoki, J. Ukita, F. Nishio, M. Nakayama, J. C. Comiso, and A. Gasiewski, "Thin sea ice thickness as inferred from passive microwave and in situ observations," *J. Geophys. Res.*, vol. 113, no. C2, 2008, doi: 10.1029/2007JC004270.

- [8] K. A. Scott, M. Buehner, and T. Carrieres, “An assessment of sea-ice thickness along the labrador coast from AMSR-E and MODIS data for operational data assimilation,” *IEEE Trans. Geosci. Remote Sens.*, vol. 52, no. 5, pp. 2726–2737, May 2014.
- [9] X. Tian-Kunze et al., “SMOS-derived thin sea ice thickness: Algorithm baseline, product specifications and initial verification,” *Cryosphere*, vol. 8, no. 3, pp. 997–1018, 2014