



Project Topic:

**DESIGN OF SURVEY BEACONS
INFORMATION SYSTEM WITH
GOOGLE EARTH BEING THE MEDIUM
FOR LOCATION BASED GEO-
VISUALIZATION; CASE STUDY -
GREATER ACCRA REGION OF GHANA
(6771)**

By

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Outline



- **Introduction**
- **Description of Project Area**
- **Methodology**
- **Final Results**



Introduction

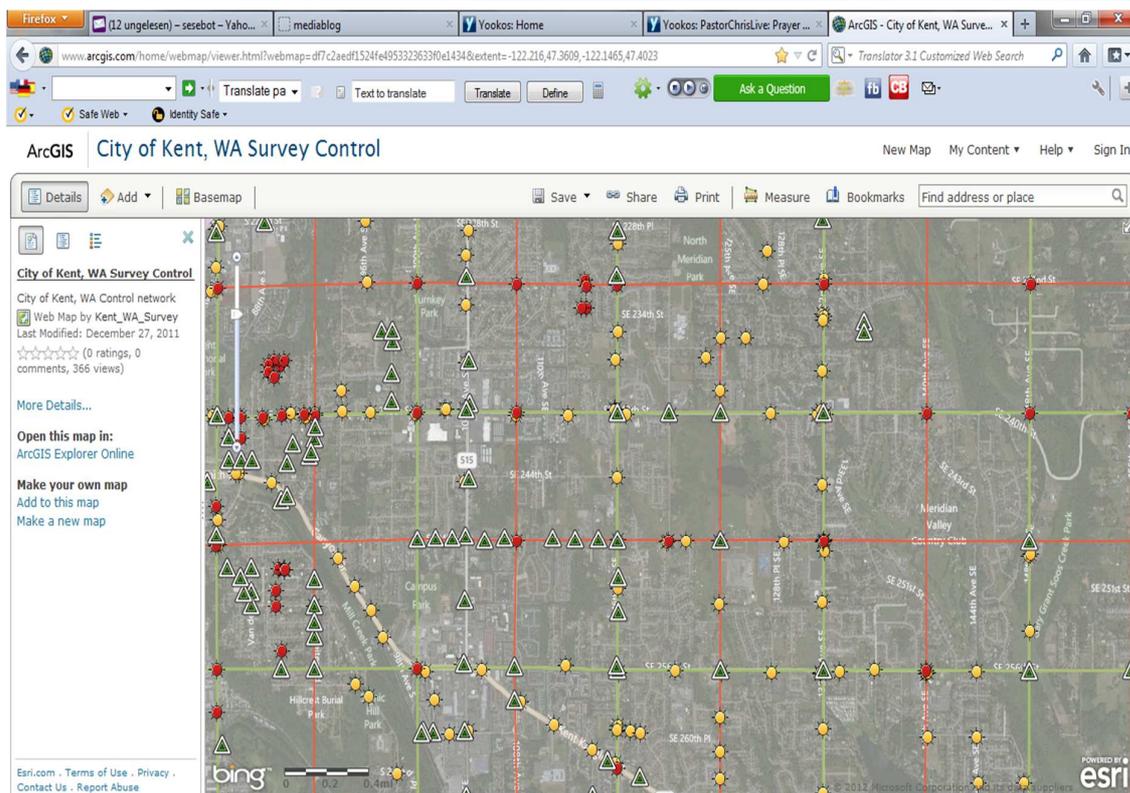


The need to develop a comprehensive and accessible geodatabase of survey beacons in Ghana has been driven by the quest for the use of modern and cost effective survey techniques to meet the rising demand for the land related positioning activities in the country.

This project addresses the rising demand for cost-effective and easy access to survey beacons and their coordinates for land surveying purposes and other land related positioning activities.



Motivation





Description Of Project Area



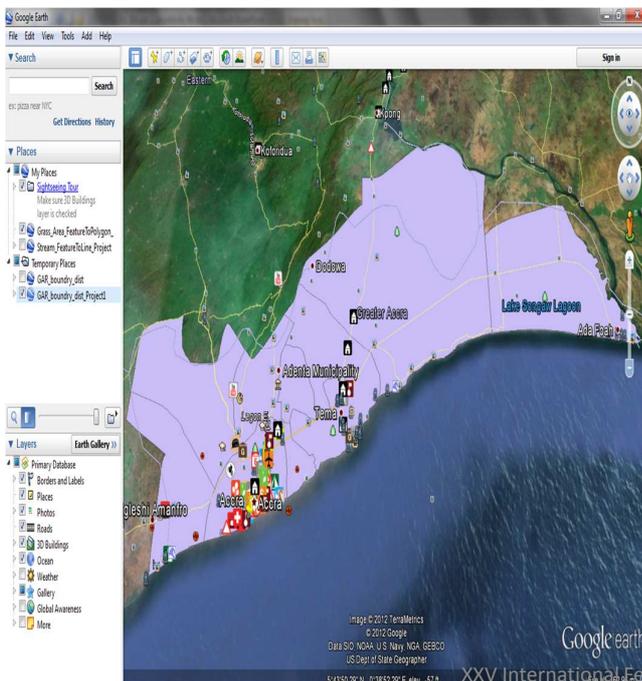
The Greater Accra Region is the smallest of Ghana's 10 administrative regions in terms of area and on Latitude 5.7500° N, Longitude 0.0000° W, occupying a total land surface of 3,245 square kilometres or 1.4 per cent of the total land area of Ghana. In terms of population, however, it is the second most populated region, after the Ashanti Region, with a population of 2,905,726 in 2000, accounting for 15.4 per cent of Ghana's total population. The Greater Accra region was part of the Eastern Region prior to 1982 and Greater Accra region was created from the Eastern Region in 1982 and currently harbors the seat of government in Accra.



Description of Project Area



Project Area in KML



Map of Project Area





Aim



- To provide a database of survey beacons over laying Google map of their spatial location and linking it to a website for easy access and retrieval.
- To publish the beacons onto Google earth for location base analysis.

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Data Source



- ❖ The record of some major survey beacons in Greater Accra from Records Section of Survey and Mapping Division - Hard copy
- ❖ The Record of GRN beacons within the project area from GRN office of the Survey and Mapping Division - Hard Copy (War Office coordinates) and Soft Copy (UTM coordinates)
- ❖ Google map of the project area - Digital

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Methodology

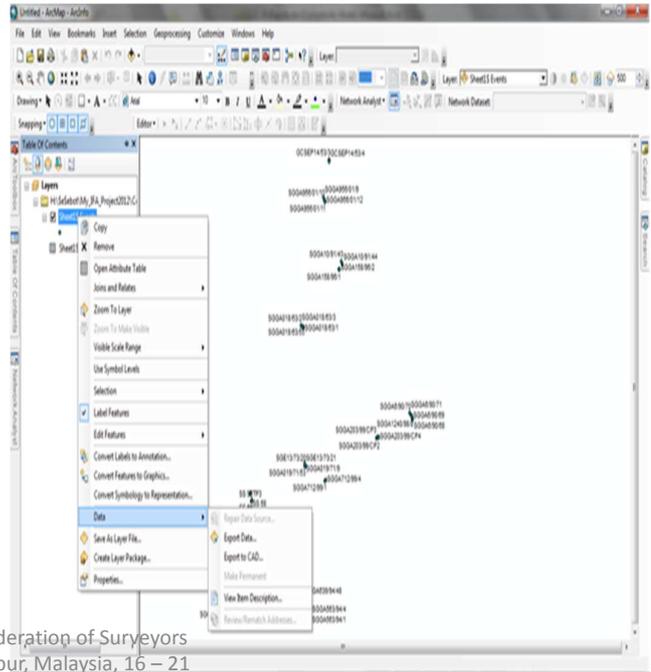


The data collected was tested (visit to site to check the existence of pillars), structured in MS Excel and converted to shapefile for projection and conversion to KML file.

Data structured in Excel

ID	X	Y	Z	Location	Year Established	Unit	Meas	Projection	Spheroid	Type	Existing	Adm. Dist	Dimension
1	43958.51	122542.16	72.978	Dodowa	1990	Int_Feet	TM	War Office	C	Yes	Dangme West	30	
2	43998.16	122639.12	69.340	Dodowa	1990	Int_Feet	TM	War Office	C	Yes	Dangme West	30	
3	43798.46	122747.58	64.48	Dodowa	1990	Int_Feet	TM	War Office	C	Yes	Dangme West	30	
4	43797.02	122765.48	62.37	Dodowa	1990	Int_Feet	TM	War Office	C	Yes	Dangme West	30	
5	438761.217	122653.485		Dodowa	1990	Int_Feet	TM	War Office	C	Yes	Dangme West	30	
6	334275.43	126050.94	165.319	Survey School		Int_Feet	TM	War Office	A	Yes	Accra Metropolitan Assembly	30	
7	334351.61	126706.15	166.806	Survey School		Int_Feet	TM	War Office	C	Yes	Accra Metropolitan Assembly	30	
8	334322.06	126989.03	169.12	Survey School		Int_Feet	TM	War Office	C	Yes	Accra Metropolitan Assembly	30	
9	334327.53	126743.76	168.597	Survey School		Int_Feet	TM	War Office	C	Yes	Accra Metropolitan Assembly	30	
10	334308.5	126671.365	168.372	Survey School		Int_Feet	TM	War Office	C	Yes	Accra Metropolitan Assembly	30	
11	425678.08	122895.07		Cyibi	1999	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
12	425687.56	122923.85		Cyibi	1999	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
13	427321.76	122923.85		Cyibi	1999	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
14	382287.86	120471.05		Fafraha	1999	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
15	382631.36	120494.55		Fafraha	1999	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
16	326741.04	120960.54		Mallam Junc	1993	Int_Feet	TM	War Office	C	No	Ga South	20	
17	326475.39	120973.06		Mallam Junc	1993	Int_Feet	TM	War Office	C	No	Ga South	20	
18	326956.33	120966.02		Mallam Junc	1992	Int_Feet	TM	War Office	C	No	Ga South	20	
19	326613.431	120930.155		Mallam Junc	1993	Int_Feet	TM	War Office	C	No	Ga South	20	
20	389556.7	120934.68		Ashale Botwe	1973	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
21	389969.47	120932.32		Ashale Botwe	1973	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
22	389555.35	120936.48		Ashale Botwe	2008	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
23	389884.55	120948.31		Ashale Botwe	2008	Int_Feet	TM	War Office	C	Yes	Adenta Municipal Assembly	20	
24	382063.895	120284.547		Prangran	2001	Int_Feet	TM	War Office	C	Yes	Dangme West	20	
25	382022.465	120178.539		Prangran	2001	Int_Feet	TM	War Office	C	Yes	Dangme West	20	
26	381315.439	120326.526		Prangran	2001	Int_Feet	TM	War Office	C	Yes	Dangme West	20	

Creating of Shapefiles in ArcMap



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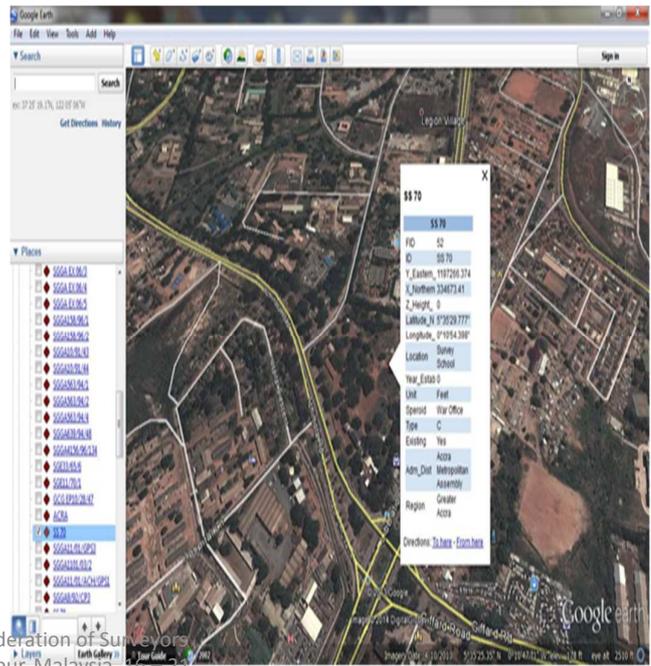
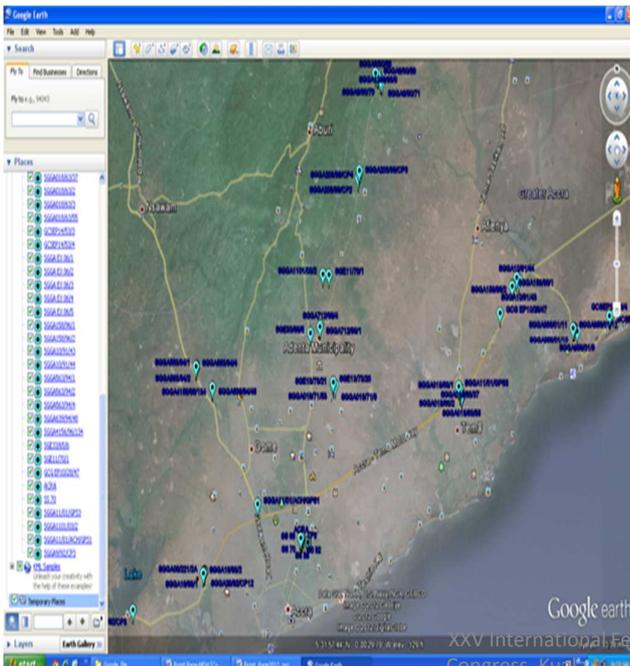
Methodology



ArcMap was used to project the shapefiles into UTM projection and also created the KML file for loading onto Google Earth

Result of the kmz file in Google Earth

A Beacon with details in Google Earth



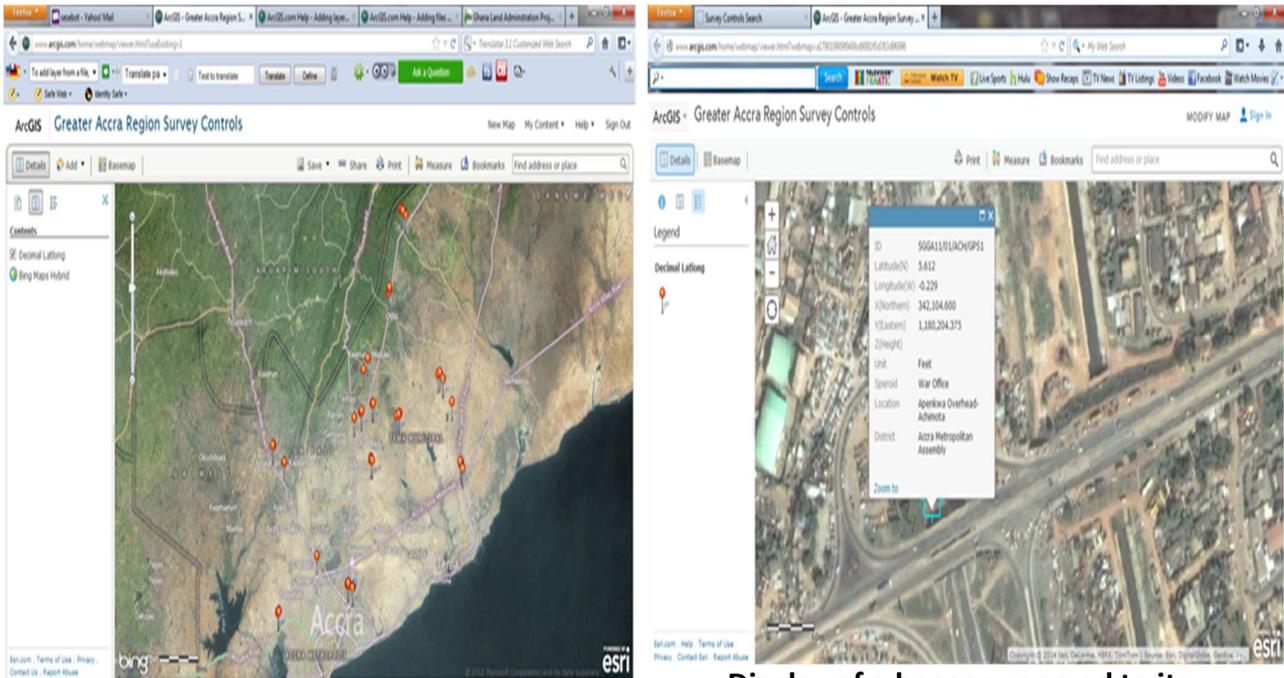
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Methodology



Adding data to the map on arcgis online requires creation of global account ArcGIS.com and import your data (csv, txt, shp, etc.)



Display of the added data

Display of a beacon zoomed to its location with its details

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Methodology

WEB APPLICATION



Database of the beacons was created and Navicat Premium was used to manage the database since it is easier to connect to MySQL and create tables. The database contains all necessary attributes of the beacons.

A website with an access interface was designed and linked to the database. The interface gives the user the opportunity to create a user account which enables him to access information on the beacons with permission from the system administrator. The system administrator can query the system to know the users of the system. Below are some of the results.



Login



Firefox | Survey Control App | Survey Control App | Contact | (7 ungelesen) - sesebot - Yahoo! Mail

localhost/faproject/index.php

xampp download | Translate pa | Text to translate | Translate | Define | Ask a Question | fb | CS

Safe Web | Identity Safe

SURVEY CONTROL APP

LOGIN

Please, fill the Login form to proceed ----->

Username

Password

Login

Don't have an account? [Click Here to Create One](#)

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Creation of Account



Firefox | Survey Control App | Registration | Contact | (7 ungelesen) - sesebot - Yahoo! Mail

localhost/faproject/register.php

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Safe Web | Identity Safe

SURVEY CONTROL APP

REGISTER

Complete the form below to create an account. You will be logged in after you submit account details

Username:

Password:

Confirm Password:

First Name:

Last Name:

Telephone number:

Email:

Institution:

GHISNO:

Profession:

Create Account



Search Results



localhost:192.168.1.100/projects/ics.php

SURVEY CONTROL APP

[SURVEY CONTROL SEARCH](#) [ADDITIONAL RESOURCE](#) [ABOUT THE DEVELOPER](#) [CONTACT](#)

Type a Pillar ID and click on 'search button' to display Pillar information

You can view Pillar location on [Google Earth](#) ([Click here](#) to download Google Earth if you don't have one) or [ArcGIS online](#)

Search

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Data Entry



localhost:192.168.1.100/projects/admin/dataentry.php?

SURVEY CONTROL APP

[DATA ENTRY](#) [QUERY USERS](#)

Kindly Enter Pillar Details. Bellow

Id:	<input type="text"/>
Pillar ID:	SGG203/99/CP4
Y Eastern:	1219315.65
X Northern:	417321.76
Z Height:	<input type="text"/>
Latitude N:	5°49'9.613"
Longitude W:	0°7'14.74"
Location:	Oyibi
Year Established:	1999
Unit:	Feet
Period:	War Office
Type:	C
Existing:	Yes
District:	Adenta Municipal Assembly
Region:	Greater Accra



Administrator



Current Users.

First Name	Last Name	Profession	Email	Telephone	GHIS Number
freeman	acheampong	teaching	fay2002@yahoo.com	0245089430	373729f9d1dk
Wilson	Goli	Public consultant	wiligo@yahoo.com	0245098740	dd00000j@h
Teye	Nyawunu	student	fisij@yahoo.com	0292929383929	37373udjd
samu	maru	ddfdjdfdd	hhdshfdh	373737000	
Seb	Bot	Land Surveying	sesebot@yahoo.com	+233243171027	

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http://localhost/#project/Adminquery.php



Thank you