**FYP**

**Literature review**

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# Literature review

**Semester: fall 2019**

**A Web GIS Application for Integration of socio-economic, biophysical and atmospheric variables: A case study of Punjab**

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**Ss-05**

**Literature review**

**1)**

**A geospatial web portal for sharing and analyzing greenhouse gas data derived from satellite remote sensing images**

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| **Features** | **Methodology** | **Relation to our project** |  |
| A geospatial web portal for data access and analysis which would cater the user, meaning that the web portal would be user adjustable and responsive. | The web portal is developed by JSP  (Java Server Pages), and Java wrapper objects are used to  Interact with the IDL objects. | We are also developing a GIS web application in the form of a GIS web portal Utilizing HTML, CSS (bootstrap) and java along with geoserver. |  |
| Monitoring and analysis of the greenhouse gas concentration through the web portal | Greenhouse gas data would be derived from remote sensing satellite images. The data would have the following features:   * Spatiality * Multi-source * Large volume | Our GIS portal would include the monitoring of the following:   * Land surface temperature * Pollution(Co2) * Precipitation * Population   For Punjab |  |
| The data or results can be downloaded from the portal as well. | Users can download the analysis results as a TXT file or an  Excel document if such results satisfy the users’ requirements. | As of yet we have not included the feature that would allow the user to download the data |  |
| The results would also be visualized in charts or grid maps with color bars | The grid map is  Implemented by ArcGIS Server and ArcSDE. Map are prepublished  by ArcGIS Server and data are preprocessed and  Transformed into ArcSDE. | The data would be visualized in the form of thematic maps. |  |

<https://www.researchgate.net/publication/257721802_A_geospatial_web_portal_for_sharing_and_analyzing_greenhouse_gas_data_derived_from_satellite_remote_sensing_images?enrichId=rgreq-2aee5c9b3587617cb9cf1e876dc950ac-XXX&enrichSource=Y292ZXJQYWdlOzI1NzcyMTgwMjtBUzozMjA3Nzc2MDQyNzIxMjhAMTQ1MzQ5MDc0ODMxMg%3D%3D&el=1_x_2&_esc=publicationCoverPdf>

**2)**

**Environmental pollution monitoring using a Web-based GIS in Surakarta**

Centre of Environmental Studies, Universitas Muhammadiyah Surakarta, Indonesia

Faculty of Geography, Universitas Muhammadiyah Surakarta, Indonesia

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| **Features** | **Methodologies** | **Relation to our project** |
| Development of Web Based GIS for monitoring environmental pollution in the region of surakarta in indonesia | Software development using technology based on Open Source (CodeIgniter, Bootstrap, OpenLayers, and GML) | We aim to develop a Web based GIS portal for the assessment of socio-economic, bio-physical and atmospheric variables in Punjab using HTML, Bootstrap, Java and Geoserver along with arc map or Qgis |
| The web application was built using Rapid Application Development (RAD) | RAD is a software development method that was invented to compress the time to design and to implement information systems, so it can produce a very short development cycle. | Our application would utilize the waterfall model for the software development. |
| Spatial-data processing and display | Quantum GIS Valmiera, for spatial data processing and OpenLayers for data display | We would focus more on data access and visualization(presentation) for which we would use ArcMap or Qgis(for creation of maps), OpenLayers(maybe) for data visualization |
| The design of the main page (interface) includes spatial and non-spatial representations, menu, navigation tools, and geographic analysis. It is generally divided into 8 main parts, namely: (1) header, footer, and application title, (2) main menu, (3) legend, (4) map navigation menu (map tools), (5) layer control tab and data tracking, (6) control layer, (7) space for map (map space), and (8) panel for showing the coordinates of pointer | Using HTML, Bootstrap , Java-script | Our design for the main page as of yet includes a Navigation bar at the bottom of the page along with the footer. We have created three basic columns one is for the accordion, the other is for the map and then for the graph. |

<https://iopscience.iop.org/article/10.1088/1755-1315/314/1/012066>

**3)**

**An offline–online Web-GIS Android application for Fast data acquisition of landslide hazard and risk**

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<https://www.nat-hazards-earth-syst-sci.net/17/549/2017/>

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| **Features** | **Methodologies** | **Relation to our project** |
| A web based android application for data acquisition | Open source programs | Our goal is for the creation of a web based application in the form of a web portal rather than an android application |
| This application assists the quick creation of landslide inventory maps (LIMs) | Through the collection of  information on the type, feature, volume, date, and patterns of landslides using open- source Web-GIS technologies such as  Leaflet maps, Cordova, GeoServer, PostgreSQL as the real DBMS (database management system), and PostGIS  As its plug-in for spatial database management. | The creation of thematic maps would be done using the software like Qgis or ArcMap. Then they would be visualized using geoserver and OpenLayers. |
| The feature information would be recorded and stored in a specific format | The specific format would be GeoJson | We are aiming to do the same for now. |

**4)**

**The corrected literature review table**

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| **References** | **Header** | **Graph(Data analysis and visualization)** | **Map navigation menu (map tools)** | **Map Legend** | **Data Download** | **Real-time spatial Data processing** |
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| **Milestone** | **Deliverable** | **Current progress.** |
| Literature Review | Summary of the work done in relevant field | We have gone through some journals, Research papers and documents (regarding various web portals) in order to incorporate and update those ideas into our project. We have documented our work in separate Microsoft word documents but have yet to formally document any literature. We mentioned in the Proposal Presentation that the literature review would be carried till the last milestone is reached. |
| Data Collection | Collection of Satellite Data Products | We have collected Data regarding LST and Population. The data regarding the other 2 parameters is being collected as of yet |
| Analysis of data/Creation of thematic maps | Thematic maps and graphs(if required) | We have created thematic maps regarding the population variable in the form of a choropleth map as of yet. |
| Web portal designing and development | Geospatial web portal | We have created a Prototype along with various other sample webpages |
| Writing thesis and research paper | Thesis | As mentioned in the literature review portion we have separately documented our work. But we have not formally started writing a thesis as of yet |