## *Chapter 1 –Introduction*

# *Background Study*

In fulfillment of Bachelor’s degree requirements in the School of Information Science and Technology students are mandated to do a project in their year 2 of study and final year titled Hit200 and Hit400 respectively. In both projects students are entitled to solve real life problems, either inverting new technologies or innovating the already existing technologies to achieve better performance and accuracy to already existing technologies. At the level of Hit200, the projects are usually done in groups of either 2, 4 or more depending on the department regulations and a staff member is assigned the task to supervise the group. At the level of Hit400, the projects are done individually with a staff member acting as the supervisor to the student.

Students are therefore entitled to choose a particular problem to solve as part of the school project. This process has been a headache to students as lot of confusion realm in selecting a topic/problem to tackle prior to what have been done before. The only way to know whether a particular problem have been done or not is by asking department lectures who intend usually replies with answers based on their intuitions and area of interest. This lead to students doing unfruitful projects as they lacked proper guidance when selecting the projects.

After students manages to select their projects, the projects are assessed by means of presentations, weight of the project capstone, documentation ,survey paper , technical papers and or other means that depends with the department. In presentations lectures from different departments gather together on the day of presentations and based on content of the presentations they jot down points to be used for marks on paper and after that the department coordinator combine the points taken by lectures and use them as assessment marks for the projects. This process is done from proposals through concept development to final documentation and at the end a student is allocated his/her mark.

From the past 5 years, Hit have been shacking the industry with producing quality graduates. This have caused a lot of hunger to some of the companies who have not yet employed Hit graduates and students. Most of this companies are keeping an eye to hit in trying to consider its graduates and students for attachments. However their eyes have been blindfolded as they the process of reviewing what Hit is doing is laborious, time consuming and very difficult. This companies are even failing to pass their suggestions to what Hit is doing prior to student’s projects as they are forced to pass their suggestions only at fixed time.

# *Problem statement*

In contrast the current system being used by Hit does not provide a convenient way of knowing projects that have been done before and the level to which the project were done. The only way to know which projects have been done before is to ask department lecturers. However the lectures replies are usually based on their intuitions and his/her area of interest and this process cannot be relied upon for innovation to already existing technologies.

Also by means of this system in current use, students are not aware of what exactly is expected at each stage i.e. from proposal through concept development to their final documentations prior to presentations and presentation of their work. Depending on the department, the assessment of projects is divided into phases such as proposal, concept developments, Progress review and etc. On assessment of each stage, they is no platform/ way to which students can know exactly what is expected at that stage as they is no platform to which templates maybe shared. Students however may intern to ask their supervisors but however due to lack of communication platforms the some of the advice from supervisors are not agreed upon by other lecturers resulting in loss of marks to students.

Also it have been noted that the protocol used by lectures to access students is prone to errors and usually results in students gaining or loosing marks unnecessarily. It is very possible to misinterpret figures written in handwriting as some handwritings are not visible enough. Also mathematical human errors are very difficult to eliminate especially when doing the computations and the final computation of marks is very tiresome as it has to be done in a manual way. Lectures are forced to review papers from proposals that could have been done some time ago. After that, they have to calculate marks for each particular student reviewing the proposal marks, concept development, marks and etc. This final computation therefore requires more time to compute and more even to determine for a particular student.

Considering also the fact that everything is being done manually, it is very difficult to enforce department government principals and standards. For example, each student have to be assessed by @least 5 lectures and at most 7 lectures. Such principals are very difficult to implement and enforce.

Also the current system used by lectures could not provide a way for students to receive continuous assessment marks. Assessment marks are important to students as they enable them to plan ahead and make adjustments in cases where they did not perform well.

With the current set up, Hit students cannot receive advice and suggestions from people in industry. This acts as a constraint to them as they lack proper guideline to what is relevant in industry. The main purpose of projects is to train student to solve practical problems with solutions that are applicable to the society. However without interactions with the society students ends up with solutions not relevant to the society.

# *Project Objectives*

* Project aims to automate the evaluation of projects and presentations for both Hit 200 and Hit 400 in the school of IST.
* Enforce department regulations and standards in project assessments e.g. ensuring that every student is assessed with at least 5 lecturers and at most 7 lecturers.
* Provide an interactive way for students to access or receive project continuous assessment marks or any performance evaluation criteria in line with the institute regulations.
* Deal away with papers used by lectures which can easily be lost or spoiled and also time consuming to review them in future as you have to search for it.
* Provide a way of tracking projects done before and there scope in line with their level of success.
* Provide an interactive and collaborative to students and lecturers prior to how projects are done.

# *Hypothesis*

## *Justification*

From the information gathered there is great need of system as it will automate the evaluation and presentation of projects for both HIT200 and HIT 400. The objective for collaboration has been: getting things done faster, cheaper and better by applying their common knowledge, bringing together a selection of web resources and attainments in a project. Because valid collaboration with teams improves productivity, speeds up result-making and optimizes of making a right decisions. Web-based project management system can surprisingly increase performance, productivity and efficiency within the Institution. Since web-based applications can be accessed through any web browser and website, no desktop installation or updates are required. Utilities for web development such as html, CSS, JavaScript and including Php5 can make the design much presentable and for consuming necessary time, keeping all troubles less, and to organize all documents into one place and most importantly, to keep track of projects that are in production for students or for keeping an eye on errors or mistakes that occur during the work process, then a good web based project management system was under consideration.

# Proposed tools

* web based application

Front-end (html, Css, JavaScript and or other frameworks

Back-end (Php5, MySQL, Maria DB)

* mobile application Visual studio 2017
* Github platform and visual studio code platform for team work purposes.

# Feasibility study

A feasibility study and analysis was carried out to make sure if the project needs to proceed given all the necessary resources and technology and to determine whether the final product or system will benefit its intended users and also to determine whether the alternative solutions will eliminate the existing problems in terms of inconsistences, performances and functionality. The following feasibility studies were conducted:-

1. Technical feasibility

On technical feasibility, a set of technological tools that govern the design of the project were considered which include proposed tools for web based application for design of both the front-end and the back-end. The use of Html, CSS, JavaScript and PHP5 can make the project more compatible with the current technology of servers currently being used in Zimbabwe. And also the use of Visual studio 2017 (Xamarin) makes the end mobile application platform independent implying that our lectures are not limited to only Android phones or other specific phones but rather platform independent.

Also to include in the technical design, the group consist of engineering expertise’s, good developers and programmers thus through the work of the team members combined with their technical skills can develop a working and functional system that can be helpful to the School of IST. At Harare Institute of Technology, the Servers used support Php as the backend language and this makes the proposed technical feasible to implement.

1. Economic Feasibility

The economic feasibility study was conducted based on the given resource constraints. The required resources are readily available and other utilities can be archived freely or at low cost. Later after this study we concluded a reliable judgment that this project was worthy and solving this problem was a worthwhile.

In terms of development and operational costs the project was proved to be economically feasible as it is going to use free online software tools such as Github platform (for collaborative work)and visual studio code (text editor) for design of the prototype up to the implementation of the final functional system. The cost and benefit of each alternative was calculated and the system is compatible with a variety of hardware and mobile applications which are achievable to most of the users

1. Operational Feasibility

Earlier in the Feasibility study and requirements engineering, we clearly analyzed that the system would be used after development. The problems from the previous manual system included too much paperwork during the presentation of HIT200 and HIT400 presentations. There was no track of projects successfully done and not done and also students were not aware of their progressive marks in terms of performance. Through the benefits of this web-based system the system will be much appreciated by most end-users as it is the alternative solution to the problems mentioned above.

The main objective of the operational feasibility study was to achieve the project goals and objectives for both development and operations and to make sure it will serve the required purpose while functioning as well as being appreciated by its users.

# *Project Plan*

### CHAPTER 2 - Literature review

### *Chapter 3 – Analysis*

# *Information gathering*

To ensure that our proposed system is fit for purpose, various information gathering tools where implemented.