

**DEVIATION ANALYSIS IN SAFETY USING IPHONE  
APPLICATION**

**This thesis is presented in partial fulfillment for the award of  
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## **ABSTRACT**

This thesis presents deviation analysis in safety by using iPhone application for a company called Alstom. The present application to do analysis of deviation is by using Microsoft Excel but it is difficult in this method for the safety officer to do the analysis because all data must be recorded on piece of paper before transferred to the computer. Besides that, the present method consume resources such as time and paper, hence it is not user friendly. The software used to develop the mobile application is by using Xcode 5.1 that is only available on OS X and not compatible with Windows operating system. The programming language used in the project is C-Objective. The results for this project are the mobile application is able to plot the bar chart from the iPhone based on 14 categories of deviation. Besides that, the user is able to send the recorded bar chart into the email at Alstom. Therefore, the user can do the analysis of deviation by enter the number of deviation at the workplace based on respective categories and send the information via the email.

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# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

The Safety and Health Officer (SHO) is the field that concerned with protecting the safety, health and welfare of the people engaged in work or employment. The purpose of SHO is to provide a safe and healthy work environment. By follow the rules set by SHO the risk of accident at the workplace can be reduced or prevented [1].

All organizations practicing the SHO to ensure the employees at the organizations are remain safe. Basically there are 5 types of hazards at the workplace. The hazards are physical, mechanical, biological, chemical and psychosocial. All the hazards potential risks must be obey in order to ensure safety working environment. Besides the hazard rules, there are others protocol in SHO that must be followed by the organization. The deviation in SHO is defined as noncompliance to specific requirement in health and safety protocol and it can cause an accident at the workplace [2].

The deviations is referred as errors, failures, problems that does not obey the good practices at the workplace based on the Regulations, standard and procedures and by disobey the deviation can cause accident at the workplace [3].

The deviation analysis is important in order to reduce or prevent an accident from occurred at the workplace. Some of the workplace might have unsafe working arrangement. Deviation record analysis is important to be updated daily in order to ensure a safe working environment. Deviation analysis basically covers the type of deviation and how much the situation occurred at the workplace.

The deviation analysis at the workplace are 14 categories which are housekeeping , machinery & tools, working at height , lifting / crane operation, confined space , chemical management, fire safety , personal protective equipment , electrical safety ,