CHAPTER 4

RESULT AND DISCUSSION

4.1   Result

This chapter elaborates the details of the verdicts which have been yields through the implementing of project. The sequences of verdicts are organized as follow:
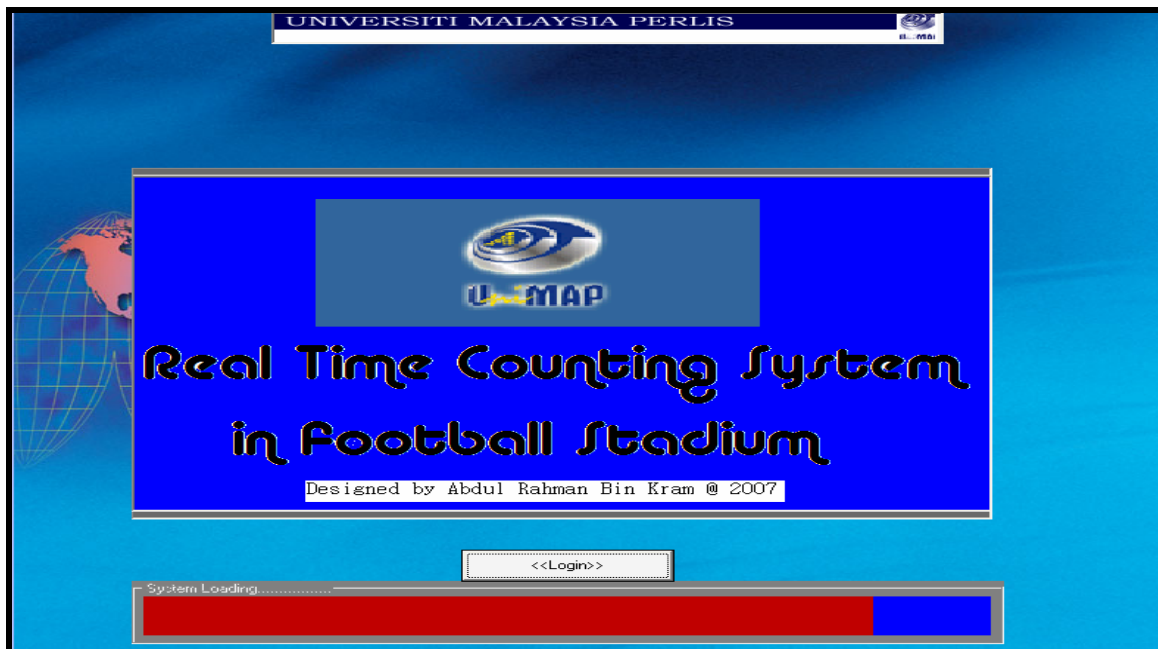

Figure 4.1: Front Page

Front page is a preface window at the beginning of RTCAS system. This is to notify the user about what kind of system that they interact with.

Figure 4.2: Login Screen

Figure 4.2 represent login screen after loading front page window. The user has to fill this page window before can access the entire RTCAS system. This window contains Access, New User, Change Password and Exit control buttons. Each of this control buttons will be elaborate in detail in result discussion section.

Figure 4.3: 'New User?' screen

The new user who first time login this system can register as member to utilize this RTCAS system. They also can view the roster of old member. These windows consist of Add, Delete, Back and Exit control button. Above of this button display the three boxes text that have to full fill as requirement to complete the new registration.

Figure 4.4: Change Password screen

Figure 4.4 is a change password screen for old user who desired to make their modification upon old password. This screen contains Change, Cancel and Exit control buttons which have a function to modify their password.

Figure 4.5: Access screen

Login screen is main program of RTCAS system as shown in Figure 4.5. User can choose several control buttons to view the other window. This screen also displays the calendar and watch for user guiding. Main RTCAS system contains Counting System, Statistic Audience, About Us, Event, Add Event and Edit Event. Each of the buttons execute it own functional.
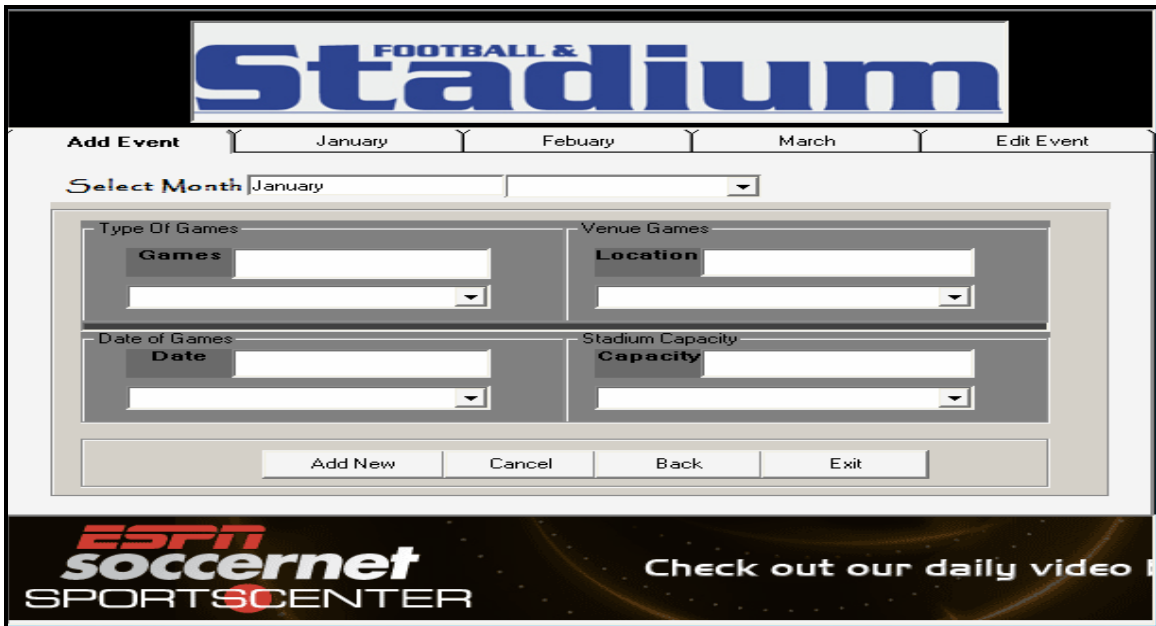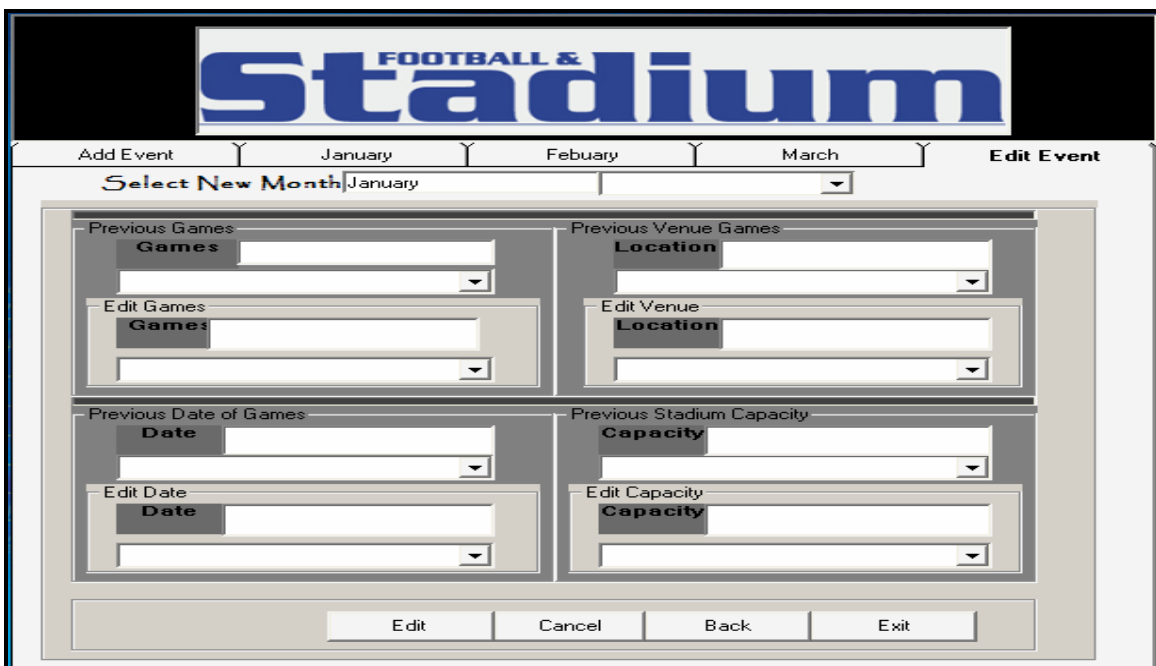
Figure 4.6: Add Event screen

Figure 4.7: Edit Event screen

Figure 4.7 displays the modification of event function. In order to make an additional event, user can choose Add Event as shown Figure 4.6 and to alter some a certain information user can select Edit Event as shown Figure 4.7.

Figure 4.8: Data of January screen

Figure 4.8 is represent one of monthly event schedule. This screen views the detail information about every up coming event. User also able to view the data in report and has an option to print the report. The control buttons within this screen are Add New Event, View Full Report, Print Report, Edit Event and Exit. The February and March tentative schedule can be view in Appendix B.

Figure 4.9: Data Repot of January

Figure 4.9 shows the one monthly report as mention before. The report contains Games, Venue, Date and Capacity. This report can be also print directly from this page as shown at printer icon above.
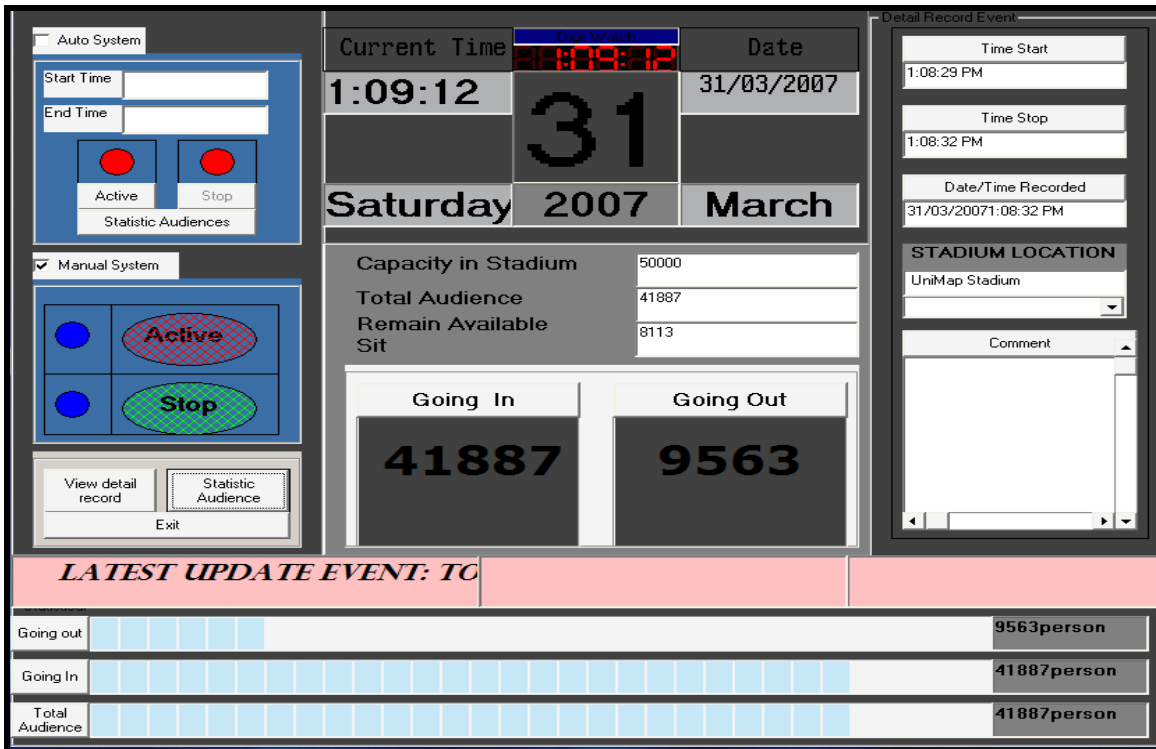
Figure 4.10: RTCAS screen

Figure 4.10 shows the counting system. User can view the in and out audience when through the entrance. These screens contain the timer, stadium location, comment and statistical attendance. Beside that, the user able to know capacity stadium and total of audience to calculate the remained sit available. Report also can be view as shown in Figure 4.11.
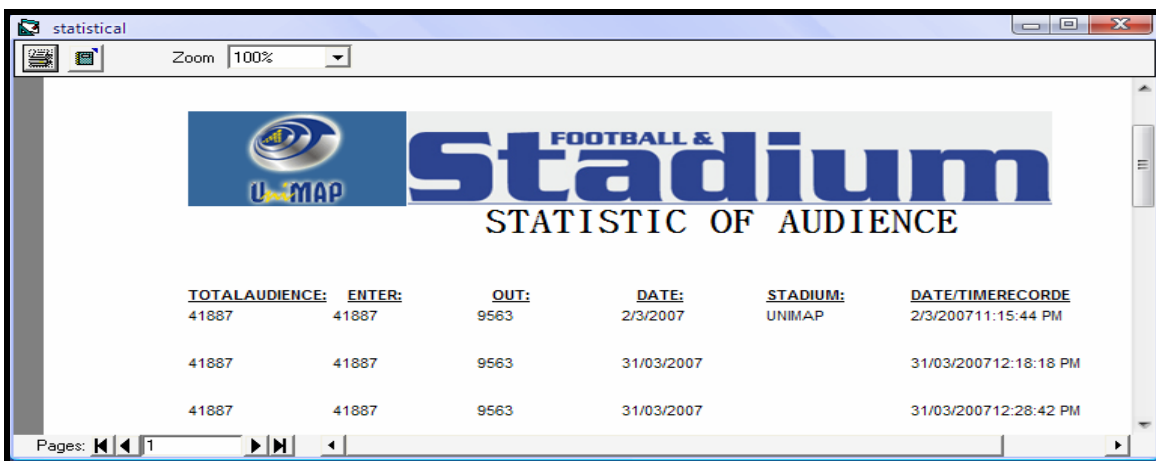
Figure 4.11: Data Repot of Counting system

Report of audience attendance in Figure 4.11 can be viewed in counting system. The system can recognize the direction of audience at entrance whether going in or out. The report comprises Total Audience, Enter (Going In), Out (Going Out), Date, Stadium and Date/Time Recorded.

Figure 4.12: Screen display About Us

Figure 4.12 shows the stadium information and management in detail. These screens comprise Presentation, Members, Services and Contact Us control buttons. Each button will be link to new window as named at button.

4.2   **Discussion**

4.2.1   Software Result

Software divisions of RTCAS project begin with front page screen as shown in Figure 4.1. This introduction window form as a preface for every user when dealing with this system. The system will loading after user click the 'Login' control button. Otherwise else, splash screen also usually can be used as an introduction window in visual basic program to display welcome greeting.

The next screen appears is 'Login' screening which functional as an identifier database system. This screen purpose to recognize every user who tries to access the RTCAS is a member that had registered. When invalid user massages appear at screen, indicate that system cannot match that user with database system. Therefore, the user has to re-login or otherwise make a registration as a new user. When an access code was accepted, the window will jump into main menu system which indicates the user is successfully login without error. If the old user inclined to modify or change their old password, they can implement in alteration window by click 'Change Password' button. This can be view as shown in Figure 4.2.

Based on Figure 4.3 indicate the new user registration. The new user has to fill new username and new password. The new password must be match with confirm password to verify new user membership. Then click button 'Add' to complete the registration. If warning massage appears, read carefully the error message and follow again the step above. If successfully, the new user created message will display and can be view at user account list name. Figure 4.4 is showing the alteration of old password. The system enables the user to change their old password as they ardently. In order to achieve this, the user has to enter old password at Login window and click 'Change Password' button. Then complete the requirement form which user has to fill the username and new password request. If success, the system send the message; the user

has successfully change their new password otherwise alteration password will abortive and re-fill changing form.

Access screen window contains the main menu of RTCAS as shown in Figure 4.5. The user can select several control buttons to active the program. Beneath the 'Counting System' button is a system which reckons the attendance of audience. This part will be elaborate detail in RTCAS section. When user click 'Statistical' button, it refer to current presence recorded of RTCAS. 'About Us' button is to explain the backbone of organization of stadium management. The users also able to view the latest information about football management which appertain to stadium utilize. Beside that, user can view the tentative schedule of stadium under the 'Event' control button. This side enable user to add or edit event of access table. Otherwise else, in main menu screen equipped with time and calendar which as a user guidance.

Figure 4.6 and Figure 4.7 are representing to add and edit event. Add event part provides the form to make additional information on tentative schedule table. This new data will be automatically saved in database system and can behold in data report. Edit event part enabled the user to make the modification upon table. Hence, the system automatically updates the new changing backup data in the database system. To view the detail report, the user just has to click 'view full report' button and for print click 'print report' button. This can be shows in Figure 4.8 which example for January upcoming event. Data report contains Games, Venue, Date and Capacity in one aligns.

RTCAS system is the major program of software part. This system as mentioned to count the presence of audience. The counting system will begin to count when sensor system detect the audience pass by the entrance which indicated in Figure 4.10. Sensor system explains in detail in hardware part (4.2.2 Hardware result). In order to activate RTCAS, the user must set first certain control buttons. First is select whether auto or manual system. Then choose the location of event. If the user not follows the method above the system will send the notice message. Click the 'Active' control button to activate the RTCAS and user able to know the total of audience in stadium. RTCAS also

consider the direction of audience whether going in or out. This circumstance is important to calculate the real total audience within stadium at one time. Statistical provide the display current of total audience, going in and going out. When user want to stop the counting system just click the 'Stop' button. This will automatically save the record detail data event in database system. All of this can be view in data report as shown in Figure 4.11. Therefore, within the report contains Total Audience, Enter, Out, Stadium and Date/Time recorded for every event that had been held.

In order to make the RTCAS system more flexible and dynamic it provides the stadium presentation beneath About Us section as shown in Figure 4.12. There are four main fractions within. Presentation screen is a part to explain in general about the purpose of stadium management. Contact Us screen is to display the available number contact and address for get more information. Members screen is to show list of company or organization or individuals who have relationship with the stadium management. Lastly, Services screen amusements the facilities that can be consume and appropriate with stadium function.

4.2.2 Hardware Result

APPENDIX B Figure (a) and (b) show the prototype of project. If the emitter and detector are not blocked, then the output that measure at collector leg to ground will be high which approximately exhibits 5 Volts. When in are blocked, then the output will be low, approximately 0 Volts. In this circuit, the collector leg as point reference to get "clean" HIGH and LOW output signals. Logic '0' approximately <0.7 V and logic '1' approximately 2.4V – 5V.
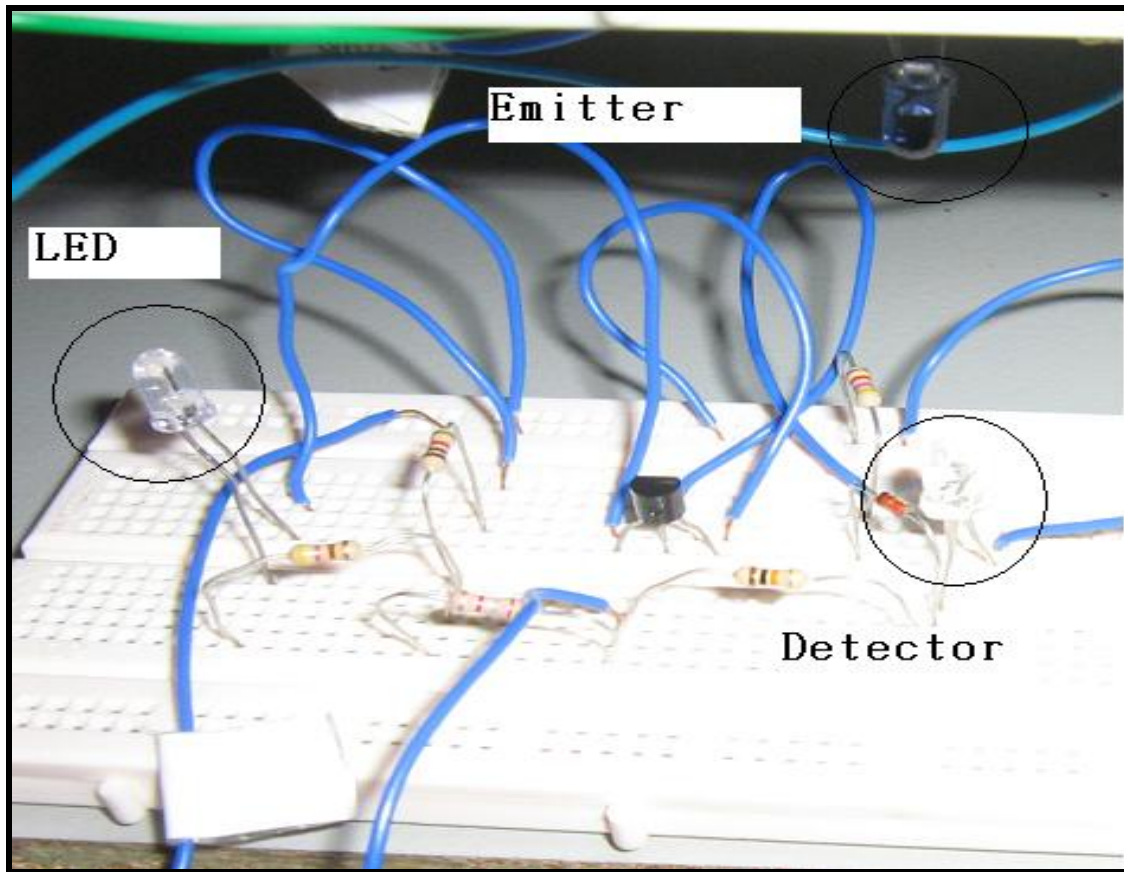
Figure 4.13: Unblock sensor condition

(a) Not Blocked Case: High Signal occurred

Current from Vcc flows through the 470 Ω resistor and emitter. The current continues to flow through the 10k Ω and detector. Current from Vcc also flows through diode and 4.7k Ω to base transistor and Emitter to ground. As a result of this current path, there will be no current flowing through collector path. The signal at collector now is high and exhibit 4.26 volts.
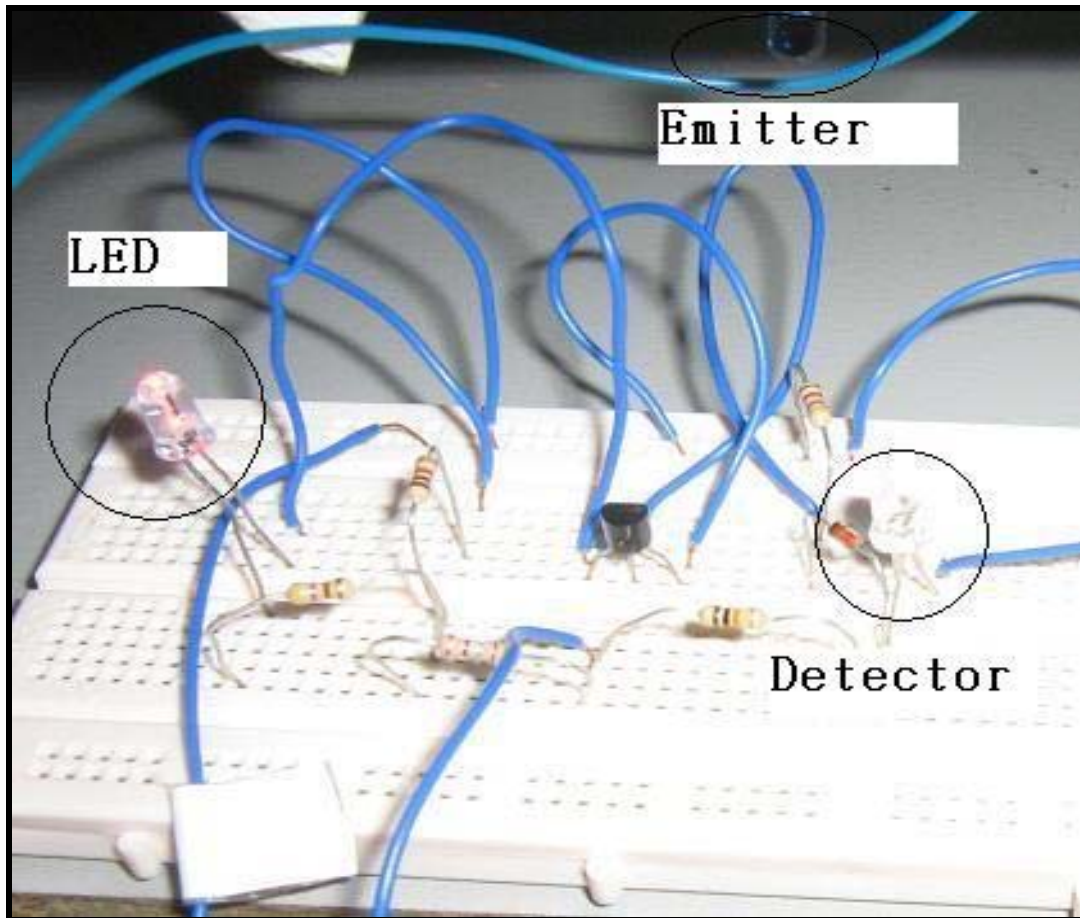
Figure 4.14:   Block sensor condition

(b)   Blocked Case: Low Signal occurred

Current "stops" at the detector. Transistor Base is not turned on. The current is re-routed passing through 470 Ω resistor and LED into the collector of transistor. This allows the LED light where at this condition at detector path in "short" and current flows only to diode and 4.7k Ω resistor. Thus the voltage measure at collector is in low signal and the voltage value 1.96 volts.

<u>**Voltage Divider calculation**</u>

R1 = 1.8k Ω, R2 = 1k Ω and voltage total = 12 V

Formula:

$$\frac{R2}{R1 + R2} \quad X \quad V_{TOTAL}$$

$$\frac{1k}{1.8k + 1k} \quad X \quad 12V \quad = \textbf{4.28 V}$$

4.2.3 Overall discussion of RTCAS project

The smoothness of RTCAS project interfered by problem due to several constrains but lately can be solved. Based on Gantt chart planning the project should be done in early of March. Gantt chat is one of prefix method to make the systematic planning and scheduling to implement the project. It will be become as a main guidance for project maker to finish every phase's project as planned. From here the project will be evaluate and check accordance to Gantt chart planning. RTCAS duration project is about two semesters to finish, complete with project report. The project is successfully done in time but not fully follow the Gantt chart planning.

The RTCAS projects are combining for sensor system and visual basic program. This makes the RTCAS as one powerful system to utilize. Flexible and dynamic with latest technology this system is easy to applicable in anywhere. Sensor system which using the infrared detector is very sensitive component to detect the presence of audience. Infrared sensor basically applies the light as transmit signal or well known as beam. When beam altered by something, it will activate the LED to lit. This type of application usually used in alarm system but appropriate developed in RTCAS project. Visual Basic programming which as software application full support of RTCAS. This software is contains the builder tool that able to create powerful system programming. The obvious

difference between visual basic with other programming software is the commands/instructions that can be reduce and hence minimize the consuming of instruction program. In other word, the short instruction is enough to execute the main program. This is what has applied to RTCAS program.

Apart from that, RTCAS can be as one of security method. The counting upon audience enables to know the current total within stadium. This can avoid the flood of audience which possibly surpasses the load of stadium structure endurance. Affect from this situation can bring the restlessness of destruction structural stadium building.

The RTCAS project also evaluate by project supervisor and user as well to obtain the feedback of the usage reliability and problem they faced when try this system. This essential to identify the weakness of project and can enhance the ability of system. Due to RTCAS is dealing with human all the feedback must be consider in order to make the system more accurate and effective. Therefore this section below will explain the strength and weakness within RTCAS project.

4.2.4   Strength of RTCAS

This entire project uses the latest technologies component. Hardware implementations have provided several of knowledge and experience which improve the skill in electronic field. Corollary, it will teach a project maker to become more mature and wise when face the problem.

Software implementation introduces the visual basic programming which utilize in this project. The builder tool within enable the programmer to create a high level program equalize with another develop programming such as Java, C++, C, VHDL and other else. Among the obvious advantage of visual basic is the using of set of instruction. Beside that this system also uses the method of UML in order to make the system excellent work.

Low cost implementation is one of advantages RTCAS. The cost only will be earned on sensor circuit. However, the requirement to design a sensor circuit absolutely needless component. This become easier with simple sensor circuit and fast to construct. Hence RTCAS project can bring the high profit with cheap cost to execute.

RTCAS can set various applications which can do multiple tasks. High reliability of system makes it more secure for user security. Therefore this system very helpful for user access and have a big potential to developed as a sophisticated technology.

4.2.5 Weakness of RTCAS

As a fast blooming of technology, this system expected had been developed by other creator. This will increases the competitive among good design. If this system is not developed, it has to appropriate with current demand market and possibly hard to expendable.

Other than that, the application of system only focuses on counting audience stadium which have limited functional to apply in other adaptable.

Lastly, in the RTCAS system utilizes two different entrances to distinguish the direction of audience whether detect enter or out. The system should be upgrade into one entrance and same time can recognize which audience going out and going in. This should be more seemed the project sophisticated and more application can be added to enhance the ability of RTCAS.

CHAPTER 5

BUSINESS PLANNING

5.1   Introduction

Nowadays world business growth rapidly and give high profit. Strategic management is one of essential success key to bear over it and carry the meaning; the process of specifying an organization's objectives, developing policies and plans to achieve these objectives, and allocating resources to implement the policies and plans to achieve the organization's objectives. It is the highest level of managerial activity, usually performed by an organization's Chief Executive Officer (CEO) and executive team. Strategic management provides overall direction to the enterprise.

RTCAS have a big potential to expand in business planning. With the flexible and dynamic system, RTCAS can be commercializing at a wide marketplace. Multiple applications within RTCAS appropriate to utilize anywhere with lower cost installation.

5.2   Strategy to commercialize

A critical review of past performance by the owners and management of a business and the preparation of a plan beyond normal budgetary horizons require a certain attitude of mind and predisposition. Some essential points which should to be observed during the review and planning process include the following:

- Relate to the medium term i.e. 2/4 years RTCAS marketable

- Be undertaken by owners/directors
- Focus on matters of strategic importance
- Be separated from day-to-day work
- Be realistic, detached and critical
- Distinguish between cause and effect
- Be reviewed periodically
- Be written down.

As the precursor to developing a strategic plan, it is desirable to clearly identify the current status, objectives and strategies of an existing business or the latest thinking in respect of a new venture. Correctly defined, these can be used as the basis for a critical examination to probe existing or perceived Strengths and Weaknesses.

In order to make the commercialization more effective, the process of development can implement in phases fraction division which aimed to breakthrough the current market. Different phases are distinguished in this process. First, the innovation phase which covers the period from the invention of a RTCAS until marketable to the first market introduction of a product. In this phase, the invention is turned into a marketable product or innovation. Second, the market adaptation phase comprises the period from the first market introduction up to the point where a standard production facility is established and the product starts to diffuse on a large scale. Third, the market stabilization phase; this is the period from the large-scale production until substitution of the technology. These three phases are important to sustainable and independent in wide market. The focus of the case-studies is on three aspects:

(1) The main actors in each phase of RTCAS invention and market.
(2) The strategies of these actors during the process.
(3) The customer segments and applications that the actors targeted during the process.

The main actors involved in the development and diffusion of breakthrough current market change considerably during the phases. The market adaptation phase is a phase that is most turbulent: most actors enter and leave the market over a relatively short period while making substantial losses. Customer segments and user applications also change considerably during the phases. Usually, niche markets emerge first, i.e. specific customer segments using this technology in specific applications, that diverge considerably from the mass market applications and customer segments emerging later.

The management implications of these findings are large. Developer RTCAS should be well aware of which phase they are in. Their strategies have to be adapted to the phase of the process; strategies that appear to be successful in the market adaptation phase, for example, can be detrimental in a later phase, yet the case studies indicate that most successful actors consistently pursue one strategy.

5.3   How to implement business strategy of RTCAS project:

Implementation commercialize RTCAS must be wise and systematic in order to establish this product. There a several methods to achieve it as shown below:

    i.   Increase revenues through sales and marketing activity targeted to general utilization not only at stadium but flexible to consumed at anywhere and any place.

    ii.   Expand leverage existing commercial infrastructure by provide licensing, acquiring or co-promoting currently marketed.

    iii.   Assemble a pipeline of high quality product about RTCAS development projects which address significant needs in the technology field.

    iv.   Actively partner with other organizations in order to build a robust product portfolio of RTCAS invention and maximize the productivity.