BILLBOARD MULTILINGUAL ONLINE SYSTEM (BMOS)

MOHD HASNUL SHAHRIL BIN HARUN

A report submitted in partial fulfilment of the requirements for the award of the degree of Computer Science (Computer System & Networking)

Faculty of Computer Systems & Software Engineering
University Malaysia Pahang

MAY 2010
ABSTRACT

Billboard Multilingual Online System is a system that sends an instant update message about games in a stadium to other computer into various type of language. This system operates using switch and router to connect to another language billboard. The main computer which is the default language will be controlled by an administrator to send the update result of the game such as current score, current match time and home and name of the team in the game. This scoreboard system can translate language into another language simultaneously during the games event.
ABSTRAK

# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DECLARATION</td>
<td>iii</td>
</tr>
<tr>
<td></td>
<td>SUPERVISOR'S DECLARATION</td>
<td>iv</td>
</tr>
<tr>
<td></td>
<td>DEDICATION</td>
<td>v</td>
</tr>
<tr>
<td></td>
<td>ACKNOWLEDGEMENT</td>
<td>vi</td>
</tr>
<tr>
<td></td>
<td>ABSTRACT</td>
<td>vii</td>
</tr>
<tr>
<td></td>
<td>ABSTRAK</td>
<td>viii</td>
</tr>
<tr>
<td></td>
<td>TABLE OF CONTENTS</td>
<td>ix</td>
</tr>
<tr>
<td></td>
<td>LIST OF TABLES</td>
<td>xii</td>
</tr>
<tr>
<td></td>
<td>LIST OF FIGURES</td>
<td>xiii</td>
</tr>
<tr>
<td></td>
<td>LIST OF APPENDICES</td>
<td>xiv</td>
</tr>
<tr>
<td>1</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1</td>
<td>Project Background</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>Problem Statement</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Project Objective</td>
<td>3</td>
</tr>
<tr>
<td>1.4</td>
<td>Project Scope</td>
<td>3</td>
</tr>
<tr>
<td>1.5</td>
<td>Thesis Organization</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>LITERATURE REVIEW</td>
<td>5</td>
</tr>
<tr>
<td>2.1</td>
<td>The Term of Online</td>
<td>5</td>
</tr>
<tr>
<td>2.2</td>
<td>Multilingual</td>
<td>6</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Microsoft Word 2007</td>
<td>6</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Mozilla Firefox</td>
<td>8</td>
</tr>
<tr>
<td>2.3</td>
<td>Billboard</td>
<td>8</td>
</tr>
</tbody>
</table>
2.3.1 Brief Definition 8
2.3.2 Technology 10
2.3.3 Types of Billboard @ Scoreboard 11
2.4 The Term of System 13

3 METHODOLOGY 15
3.1 Introduction 15
3.2 Software Methodology 16
3.2.1 Requirement Planning 18
3.2.2 User Design 19
3.2.3 Construction 21
3.2.4 Cutover 21
3.3 Software and Hardware Requirement 22
3.3.1 Software Requirement 22
3.3.2 Hardware Requirement 23

4 Implementation 24
4.1 Introduction 24
4.2 MySQL Explanation 25
4.3 Setting up MyODBC (Connector/ODBC) 28
4.4 Interface and Coding Explanation 30
4.4.1 Administrator Interface (Server) 31
4.4.1.2 Register Team Coding 32
4.4.1.3 Register Team Function Coding 35
4.4.1.4 Register Team Coding Explanation 37
4.4.1.5 Home Team Current Result Interface 37
4.4.1.6 Away Team Current Result Interface 48
4.4.2 Index Interface (Client User) 58
4.4.3 Functions Coding 63
5 RESULT AND DISCUSSION
  5.1 Introduction 89
  5.2 Expected Result 89
  5.3 Result of The System 90
  5.4 Advantages 98
  5.5 Disadvantages 99
  5.6 Assumption 99
  5.7 Future Development 100

6 CONCLUSION
  6.1 Summary 101
  6.2 Achieved Objective 102
  6.3 Lesson Learned 102
  6.4 Project Planning 102
  6.5 Time management 103
  6.6 Conclusion 103

REFERENCES 104
APPENDICE A 107
<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Software requirements used in system development</td>
<td>22</td>
</tr>
<tr>
<td>3.2</td>
<td>Hardware requirements used in system development</td>
<td>23</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Tutorial of Setting up the Language</td>
<td>7</td>
</tr>
<tr>
<td>2.2</td>
<td>Tutorial of Setting up the Language</td>
<td>7</td>
</tr>
<tr>
<td>2.3</td>
<td>Types of Billboard used</td>
<td>9</td>
</tr>
<tr>
<td>2.4</td>
<td>Basketball Billboard</td>
<td>11</td>
</tr>
<tr>
<td>2.5</td>
<td>Soccer Scoreboard</td>
<td>12</td>
</tr>
<tr>
<td>2.6</td>
<td>Baseball Scoreboard</td>
<td>13</td>
</tr>
<tr>
<td>3.1</td>
<td>Martin's Four Phases RAD Life Cycle</td>
<td>17</td>
</tr>
<tr>
<td>3.2</td>
<td>Illustration of the System Module</td>
<td>18</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic Concept of BMOS</td>
<td>20</td>
</tr>
<tr>
<td>3.4</td>
<td>Flowchart for BMOS</td>
<td>20</td>
</tr>
<tr>
<td>4.1</td>
<td>Awayteam Database Table</td>
<td>25</td>
</tr>
<tr>
<td>4.2</td>
<td>Hometeam Database Table</td>
<td>26</td>
</tr>
<tr>
<td>4.3</td>
<td>Result Database Table</td>
<td>26</td>
</tr>
<tr>
<td>4.4</td>
<td>Summary Database Table</td>
<td>27</td>
</tr>
<tr>
<td>4.5</td>
<td>Web Browser Windows</td>
<td>28</td>
</tr>
<tr>
<td>4.6</td>
<td>Phpmyadmin Login Interface</td>
<td>28</td>
</tr>
<tr>
<td>4.7</td>
<td>Create New Database Interface</td>
<td>29</td>
</tr>
<tr>
<td>4.8</td>
<td>Interface Showing the Database Has Been Created</td>
<td>30</td>
</tr>
<tr>
<td>4.9</td>
<td>Registration Team Interface</td>
<td>31</td>
</tr>
<tr>
<td>4.10</td>
<td>Home Team Current Score Interface</td>
<td>37</td>
</tr>
<tr>
<td>4.11</td>
<td>Home Team Current Possession Interface</td>
<td>39</td>
</tr>
<tr>
<td>4.12</td>
<td>Current Home Team Change Player In / Out</td>
<td>42</td>
</tr>
<tr>
<td>4.13</td>
<td>Current Home Fouls Interface</td>
<td>46</td>
</tr>
<tr>
<td>4.14</td>
<td>Away Team Current Score Interface</td>
<td>48</td>
</tr>
<tr>
<td>4.15</td>
<td>Away Team Current Possession Interface</td>
<td>53</td>
</tr>
</tbody>
</table>
4.16 Current Away Team Change Player In / Out 48
4.17 Current Away Fouls Interface 56
4.18 User Interface (Current Result of the Game) 58
5.1 Administrator Interface (Server) 90
5.2 The Administrator Register the Team Name and Logo 91
5.3 Registration database 91
5.4 User Interface after Registration Team 92
5.5 Main Administration Interface (Server) 93
5.6 Home Team Score / 94
5.7 Away Team Score 95
5.7 Current Score Translation Database 95
5.8 Full Time and Summary Result 97
5.9 Full Time Database Result 98
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>System Gantt Chart</td>
<td>64</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

1.1 Background

A billboard or scoreboard is a large board for publicly displaying the score in a
game or match. Most levels of sport from high school and above use at least one
scoreboard for keeping score, measuring time, and displaying statistics. Scoreboards in
the past used a mechanical clock and numeral cards to display the score. When a point
was made, a person would put the appropriate digits on a hook. Most modern
scoreboards use electromechanical or electronic means of displaying the score. In these,
digits are often composed of large dot-matrix or seven-segment displays made of
incandescent bulbs, light-emitting diodes, or electromechanical flip segments. An
official or neutral person will operate this scoreboard system, using a control panel.
This scoreboard system will show the score for the home and away team, as well as the
current match time. A board displaying the current stoppage time is usually held up
up by one of the match officials towards the end of the first and second half. The same board is also used to denote the jersey numbers of players coming in and leaving the game during a substitution, with the substitute's number appearing in green, while the leaving player is denoted in red.

System came from the Latin word, which means that is a set of interacting or interdependent entities, real or abstract, forming an integrated whole. The concept of an integrated whole can also be stated as a set of relationships which are differentiated from relationships of the set to other elements, and from relationships between an element of the set and elements not a part of the relational regime.

Multilingual is an ability of someone or something that can communicate into more than one language fluently. Billboard Multilingual Online System is a system that sends an instant update message about games in a stadium to other computer into various type of language. This system operates using switch and router to connect to another language billboard. The main computer which is the default language will be controlled by an administrator to send the update result of the game such as current score, current match time and home and name of the team in the game. This scoreboard system can translate language into another language simultaneously during the games event.

1.2 Problem Statement

i) There are no scoreboard system can translate language simultaneously during the games into various language.

ii) It is costly to hire Multilanguage translator to translate the result.

iii) It is taking time and hard to the translator and the broadcaster to broadcast the result.
1.3 Project Objective

The primary objectives to be implementing in this project are:

i) To create a system that can translate and tell the broadcaster simultaneously the current result of the game.

ii) To save and lower the cost in hiring the translator to translate the current result for the broadcaster to broadcast the current result to their language.

iii) To ease and reduce the use of time of the broadcaster to broadcast the current result to the spectators and the fans.

1.4 Project Scope

The scopes of this project are:

i) This system can use to know the current result until the game is over simultaneously.

ii) Uses computer as a simulator to represent the scoreboard in the stadium during the game.

iii) The broadcaster, spectators and the fans can use this system to know easily the current result of the game due to this system built using the easy and short worldwide language.

iv) This system automatically translates the default language which is English language to another language such as French, mandarin, Hebrew, Malay, Italian and German.
1.5 TESIS ORGANIZATION

This thesis consists of 6 chapters. Chapter 1 will discuss about the Introduction to the System. These first chapters briefly explain about the objective of the system, problem statement and project scopes. Chapter 2 and 3 are about the Literature Review and Methodology of the project. Chapter 2 and 3 will discuss about the methods that will be used, elaborating the sources from the research, and deciding the best tools that will be used to build the system. Chapter 4, Implementation; it is about the documentation of the processes during the development of the system, including any modification that been plan and made. While the last, Chapter 5 Result and Discussion and Chapter 6 Conclusion. Chapter 5 will explain about the result that have collected from the analysis and tests of the system along with the constraints and suggestion to enhance the system performance. Conclusion and overall summary of the system, data, methodology, implementation, and the suggestions are in the matter of the discussion on of the Chapter 6.
2.1 The Term of Online

In general, when a machine is "online," it is turned on and connected to other devices. For example, when a network printer is online, computers connected to that network can print from it. Other devices, such as scanners, video cameras, audio interfaces, and others are said to be online when they are running and connected to a computer system.

Recently, however, the term "online" usually means being connected to the Internet. The connection can be through a phone line, using a dial-up or DSL modem, a cable line via a cable modem, or through a wireless connection. A computer can also be online via a connection to a computer network. Technically, computers that are on a network are online even if they are not connected to the internet.
There is one function in Microsoft Word 2007 to change from English language to other language. Figure below is the tutorial on how to activate this function:

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure21.png}
\caption{Figure 2.1}
\end{figure}

i) Point your mouse at the English (United States) bar and click it

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure22.png}
\caption{Figure 2.2}
\end{figure}

ii) After that there is one box appear to ask the user to choose any language and you can choose any language you want and click ok. Then Microsoft Word 2007 will change into the chosen language.
2.2.2 Mozilla Firefox

Mozilla Firefox is a free and open source web browser descended from the Mozilla Application Suite and managed by Mozilla Corporation. Firefox had 22.47% of the recorded usage share of web browsers as of July 2009, making it the second most popular browser in terms of current use worldwide, after Microsoft's Internet Explorer. Latest Firefox features include tabbed browsing, spell checking, incremental find, live bookmarking, a download manager, private browsing, location-aware browsing and a language bar. Functions can be added through addons, created by third-party developers, of which there is a wide selection, a feature that has attracted many of Firefox's users.

We can use Firefox in various type of language such as, Mandarin, French, Spain and Dutch. If we want to use this various type of Firefox, we must download its installer. For example, if a Spain user wants to use Firefox in his or her language, he or her need to download the Spain version of Firefox at http://www.mozilla.com/en-US/firefox/all.html and install it in your system.

2.3 Billboard

2.3.1 Brief Definition

A billboard or scoreboard is a large board for publicly displaying the score in a game or match. Most levels of sport from high school and above use at least one scoreboard for keeping score, measuring time, and displaying statistics. Scoreboards in the past used a mechanical clock and numeral cards to display the score. When a point was made, a person would put the appropriate digits on a hook.
Most modern scoreboards use electromechanical or electronic means of displaying the score. In these, digits are often composed of large dot-matrix or seven-segment displays made of incandescent bulbs, light-emitting diodes, or electromechanical flip segments.

An official or neutral person will operate this scoreboard system, using a control panel. This scoreboard system will show the score for the home and away team, as well as the current match time. A board displaying the current stoppage time is usually held up by one of the match officials towards the end of the first and second half. The same board is also used to denote the jersey numbers of players coming in and leaving the game during a substitution, with the substitute's number appearing in green, while the leaving player is denoted in red.

Figure 2.3: Type of Scoreboard / Billboard
2.3.2 Technology

Prior to the 1980s most electronic scoreboards were electro-mechanical. They contained relays or stepping switches controlling digits consisting of incandescent light bulbs. Beginning in the 1980s, advances in solid state electronics permitted major improvements in scoreboard technology. High power semiconductors such as thyristors and transistors replaced mechanical relays, light-emitting diodes first replaced light bulbs for indoor scoreboards and then, as their brightness increased, outdoor scoreboards. Light-emitting diodes last many times as long as light bulbs, are not subject to breakage, and are much more efficient at converting electrical energy to light. The newest light emitting diodes can last up to 100,000 hours before having to be replaced.

Advances in large scale integrated circuits permitted the introduction of computer control. This also made it cost effective to send the signals that control the operation of the scoreboard either through the existing AC wires providing power to the scoreboard or through the air. Powerline modems permit the digital control signals to be sent over the AC power lines. The most common method of sending digital data over power lines at rates less than 2400 bits per second is called frequency shift keying (FSK). Two radio frequencies represent binary 0 and 1. Radio transmission such as FSK sends data digitally. Until recently radio transmission was subject to short range and interference by other radio sources. A fairly recent technology called spread spectrum permits much more robust radio control of scoreboards.
2.3.3 Types of Scoreboard @ Billboard

The use of scoreboard or billboard has rapidly expanded and being used in many types of sports. Below are the examples of billboards:

A basketball scoreboard will at the minimum display the time left in the period and both team's scores. The last minute of each quarter is usually displayed with tenths of a second, which is required in FIBA, NBA (since 1989), and NCAA (since 2001). Most high school scoreboards also include a display of the number of team fouls, the number of the last player to commit a personal foul (with the total number of personal fouls for that player), the period, and indicators of which team is in the team foul penalty situation (not used in FIBA play), and possession (with a separate possession arrow display at half-court). College basketball scoreboards include shot clocks and the number of time outs left for each team. Larger scoreboards include statistics on the players in the game. Basketball scoreboards must include a horn or buzzer to signal the end of a period, fouls, and substitutions.
A football scoreboard usually shows the score for the home and away team, as well as the current match time. A board displaying the current stoppage time is usually held up by one of the match officials towards the end of the first and second half. The same board is also used to denote the jersey numbers of players coming in and leaving the game during a substitution, with the substitute's number appearing in green, while the leaving player is denoted in red.

Some amateur and youth levels will have the clock count down. Some American venues will use a multi-purpose gridiron/soccer venue type scoreboard where various statistics are shown. Such may include either total fouls, corner kicks, shots on goal, or other important statistics for spectators to learn their team's overall performance.

Figure 2.5: Soccer scoreboard
For baseball the scoreboard will at a minimum show both teams' scores, as well as the current inning. In addition the number of balls, strikes and outs is represented by digits or individual lights. Larger scoreboards offer an inning-by-inning breakdown of the scores, hits, errors, and the time of day. There may also be another display either separate or combined with the scoreboard listing the radar gun reading of the last pitch thrown in miles per hour. Almost all Major League facilities have a video board as a scoreboard or a matrix display. Usually these scoreboards are controlled via programs that keep statistics and not just the score. Usually the official scorer will operate this program. Then all the information the official scorer enters will automatically be output to the scoreboard.

2.4 The Term Of System

System came from the Latin word, which mean that is a set of interacting or interdependent entities, real or abstract, forming an integrated whole. The concept of an integrated whole can also be stated as a set of relationships which are differentiated from relationships of the set to other elements, and from relationships between an element of the set and elements not a part of the relational regime.

The scientific research field which is engaged in the study of the general properties of systems includes systems theory, systems science, systemic and
systems engineering. They investigate the abstract properties of the matter and organization, searching concepts and principles which are independent of the specific domain, substance, type, or temporal scales of existence.

Most systems share common characteristics, including:

- Systems have structure, defined by parts and their composition;
- Systems have behavior, which involves inputs, processing and outputs of material, energy or information;
- Systems have interconnectivity: the various parts of a system have functional as well as structural relationships between each other.

**Figure 2.7:** A schematic representation of a closed system and its boundary
CHAPTER 3

METHODOLOGY

3.1 Introduction

Methodology is a codified set of recommended practices, sometimes accompanied by training materials, formal educational programs, worksheets, and diagramming tool. It documented a set of procedures and guidelines for one or more phases of the software life cycle, such as analysis or design. Many methodologies include a diagramming notation for documenting the results of the procedure and an objective.

Basically, this chapter will discuss about the methodology that will be used for designing and implementing the Billboard Multilingual Online System (BMOS). This chapter also explains about the justification of methodology used and hardware and software necessity.