DEDICATION

When the heart is filled with pleasure, our love grows
Then we give without charge
We give an inexhaustible water
And as a lifetime does not end
And as flowers that do not wither
And Spring does not turn into winter
we give when tender tired from our offer

When my feet stood on the path of the beginning that was long then
My eyes could not see his range
It was no more than my little steps
Now it is almost over
I feel nostalgic
To the first day of this journey
but for any road End
I still carry the burden of the longing that will accompany me for life
I have deposited it with everything in it to stay
Her fragrance between my breath and digging in my memory
I give it to you with a bouquet of fragrant rose
To the one who took the thorns from my way to pave me the way of knowledge
To the big heart ............... (My father Dr. Yusuf Al-Ameen)
To the symbol of love and healing balm
To the pure white heart ........... (My mother Nora Mohamed Al-Khalifa)

To those who were near me support and help and encouragement to the lovers of my heart ............ (My sisters (Zubbidah & Safaa) My Brothers (Mohammed & Khaled)

To those who were my refuge
To whom I have had the most beautiful moments with them
"I will miss them ... and I hope they miss me
To whom God made them my brothers in God ... and who loved them by God
My friends & colleagues (Arch 19)

To my beloved supervisor who supported me and lit my way

T. Alia Taha
THANKS & GRATITUDE

First of all, I thank god for helping me to complete this research
My deep gratitude to my parents and my family thank you for everything you have done so far for me, for believing in me and supporting me all the way to this.
I extend my deepest thanks, gratitude, appreciation and love to those who carry the most sacred message in life ...
To those who paved the way for us to the path of science and knowledge ...

Dean of the Faculty of Architecture and Planning............ Dr. Awad Saad
Supervisor of the fifth year ...................... Prof. Souad al sadig
Head of Department of Architecture ............... T. Najwah Al mufti
And thanks to my all teachers whose Provide me with science and knowledge during my university career.

I would like to express my thanks and appreciation to my beloved supervisor for her, assistance and information to complete this research
She was like light shines darkness that sometimes stood in my way and planted optimism in my heart ..................... T. Alia Taha

Thanks to everyone who participated in completing this search
The research is about the design of a passenger terminal via the tram near Khartoum International Airport, which is a continuation of the Khartoum tram project to be implemented in the future. The project will serve the traveling between Khartoum International Airport and the state of Khartoum in general, And neighboring areas especially that the new airport will be in the outskirts of the state. After arriving at the terminal, the passengers are transported to the airport campus by means of specialized transport to and from the station.

The project consists of three main blocks:
1 / The main hall of the station part.
2 / Commercial part.
A / The tourist exhibition part. aims to guide tourists to tourist areas in Khartoum.

The research consists of Five chapters.

Chapter one consists general information about the project, Chapter tow consists data Collection about the project, & cases Studies, Chapter three consists project component & data Analysis, study & Analysis of the Site Chapter Four consists The concept & Development design & Technical Solution, Chapter Five consists final Design & Drawings.
Contents:

CHAPTER ONE (About the project) ..............................................1

Introduction ..................................................................................2

Name of project ............................................................................3

Definition & Nature of project .........................................................3

Project Level Of Service.................................................................3

Important & Needs of the project ....................................................4

Project goals ..................................................................................5

Project challenges .........................................................................5

Targeted Population .......................................................................6

The Owner of the project .................................................................6

Donors of the project ....................................................................6

CHAPTER TOW (Data Collection & Cases Studies) ......................7

KHARTOUM TRAM PROJECT..........................................................8

Map of the tram track ....................................................................9

Line (Khartoum- Airport) ...............................................................9

Line (Khartoum - Omdurman) .........................................................10

Line (Khartoum - Bahri) .................................................................11

Line (Khartoum-New Airport) .......................................................12
Tram Station of New Khartoum Airport

Line Design .................................................................................................................. 13
Trams Line .................................................................................................................... 14
Trams Capacity ............................................................................................................ 15
Tram bridges in the Nile .............................................................................................. 15
Definition of transportation ......................................................................................... 16
Transport Classification .............................................................................................. 17
Factors influencing the choice of means of transport .............................................. 17
Public Transport .......................................................................................................... 18
Current transportation problems ............................................................................... 18
Buses Cars .................................................................................................................. 19
Taxi Cars .................................................................................................................... 20
History of rail transport ............................................................................................. 21
About the tram ............................................................................................................ 21
Advantages of trams over buses in towns ................................................................. 22
Trams Types ............................................................................................................... 23
Trams Cars Capacity ................................................................................................. 26
Tramway Operation .................................................................................................... 27
Tram and light rail transport systems around the world .......................................... 28
Tram station ............................................................................................................... 28
Forms of stations ....................................................................................................... 30
<table>
<thead>
<tr>
<th>Stations platforms</th>
<th>31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railways</td>
<td>33</td>
</tr>
<tr>
<td>Planning, design and environmental considerations for transport stations</td>
<td>35</td>
</tr>
<tr>
<td>FRANKFURT _ THE SQUAIRE CITY-LINK</td>
<td>36</td>
</tr>
<tr>
<td>Tram station at Lyon airport in France</td>
<td>39</td>
</tr>
<tr>
<td>Graz Main Station Local Transport Hub</td>
<td>42</td>
</tr>
<tr>
<td>Montesano Station Refurbishment</td>
<td>45</td>
</tr>
<tr>
<td>Tram stop in Alicante</td>
<td>48</td>
</tr>
<tr>
<td>Train station in Bahri</td>
<td>50</td>
</tr>
<tr>
<td>CHAPTER TWO (Project Components &amp; Analysis)</td>
<td>53</td>
</tr>
<tr>
<td>Project Components</td>
<td>54</td>
</tr>
<tr>
<td>Spaces study</td>
<td>58</td>
</tr>
<tr>
<td>Functional Relationships</td>
<td>85</td>
</tr>
<tr>
<td>Motion Charts</td>
<td>89</td>
</tr>
<tr>
<td>Study &amp; Analysis the Site</td>
<td>92</td>
</tr>
<tr>
<td>Planning &amp; Design Indicators</td>
<td>99</td>
</tr>
<tr>
<td>Zoning</td>
<td>100</td>
</tr>
</tbody>
</table>