PROJECT

"Autonomous Vehicle Relational System in Online Transportation (AVERSOT)"

Arranged by : Group 5

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2021

PROJECT ON

Autonomous Vehicle Administration System

Developed by

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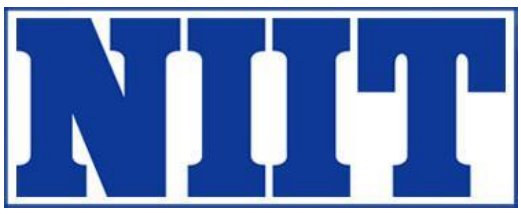


Autonomous Vehicle Administration System

Batch Code	: *1CC6*
Start Date	: *2 December 2021*
End Date	: 20 December 2021
Name of the Coordinator	: *Kevin Harada*
Name of Developer	: Muhammad Zidan Satrio
	Owen Tan Yik Wen
	Riki Awal Syahputra
Date of Submission	: 20 December 2021

CERTIFICATE

This is to certify that this report, titled *Autonomous Vehicle Administration System*, embodies the original work done by *Muhammad Zidan Satrio, Owen Tan Yik Wen, and Riki Awal Syahputra* in partial fulfillment of his/her cource requirement at NIIT.

Coordinator :
Kevin Harada

ACKNOWLEDGEMENT

Thank you, the author wishes to God the Almighty for His blessings and grace, we can complete this project task both in the form of presentation and paper in a timely manner.

The author also delivers him gratitude to Mr. Kevin Harada faculty and other faculty for all guidance to complete it. Thank you to fellow students who have supported, and also thank you to fellow workers in the education at CCIT-FT UI. The Project paper entitled "Autonomous Vehicle Administration System" the author submits as a requirement for the Project assignment in 2021.

Finally, the authors hope this paper can be useful for all and also gain a better insight into the operating system. The author realizes that it is still imperfect. Therefore, the authors really expect all suggestions and criticisms from readers who are constructive in order for the perfection of this paper. Hopefully, this paper can provide many benefits for the readers.

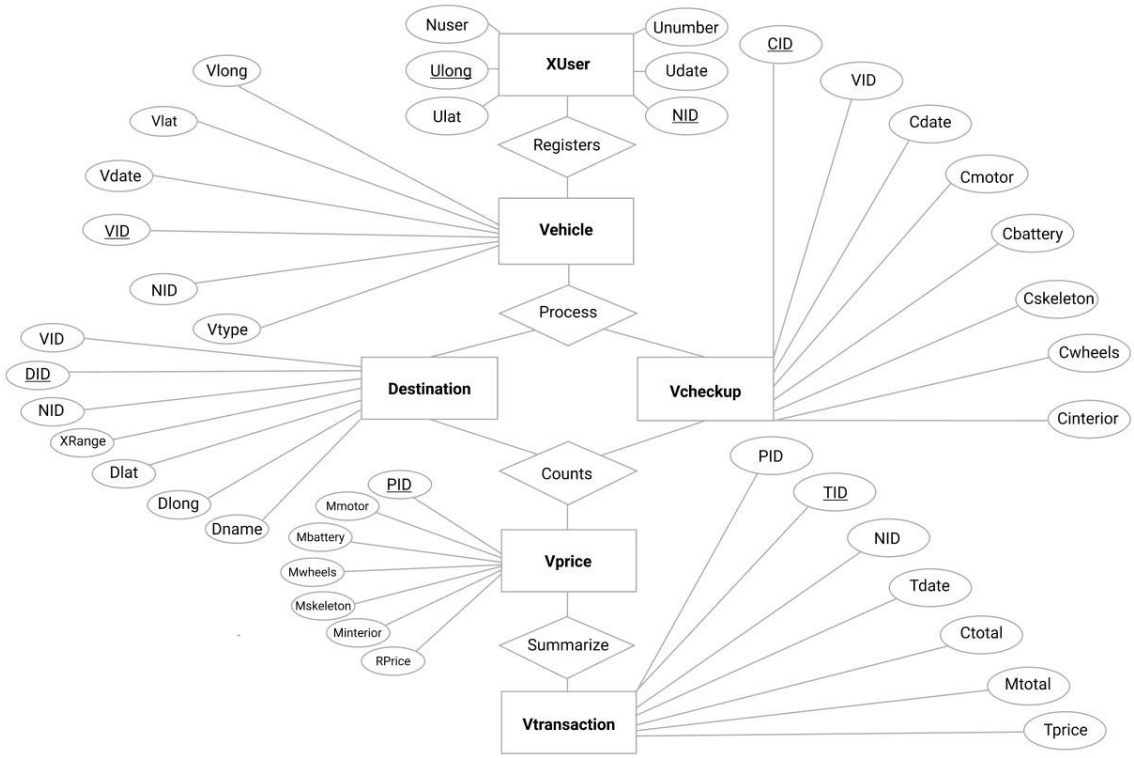
SYSTEM ANALYSIS

System summary :

In the project entitled "Autonomous Vehicle Administration System", we will show readers about the various things that we have made about the database the backend system of Autonomous vehicles in online transportation. The things we will show are ERD, Database Design, Schematic Diagram, Table Design, and Validation Performed.

AVERSOT is the backend system of Autonomous vehicles in online transportation, handling the autonomous relational system in an autonomous vehicle system based on SQL database. Autonomous Vehicle is a vehicle that works without driver, or driverless vehicle, it works with the help of sensor, Artificiall Intelligent, and Machine Learning.

ENTITY RELATIONSHIP DIAGRAM



DATABASE DESIGN

Database Name **:** AVRS

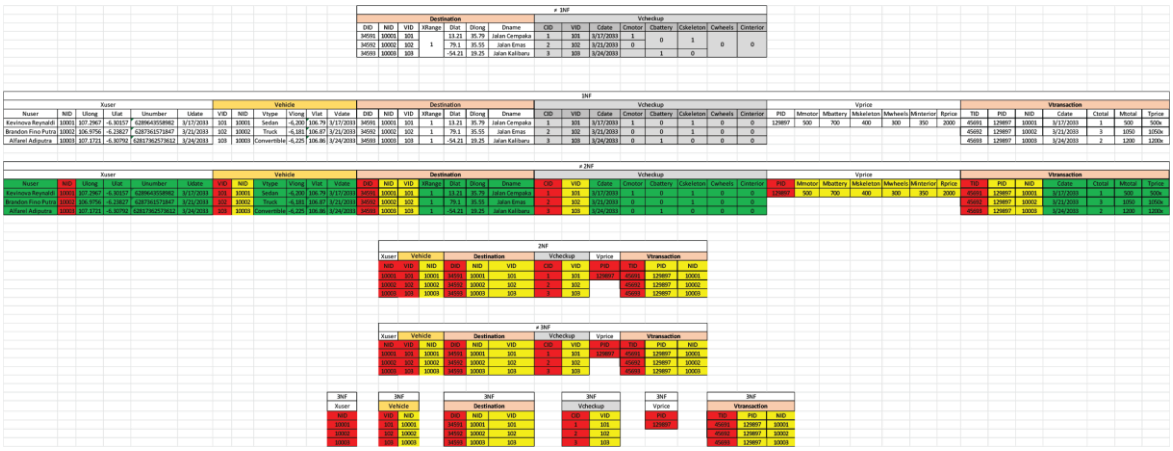
Number of Tables **:** 6

1. XUSER
2. Vehicle
3. Destination
4. Vcheckup
5. Vprice
6. Vtransaction

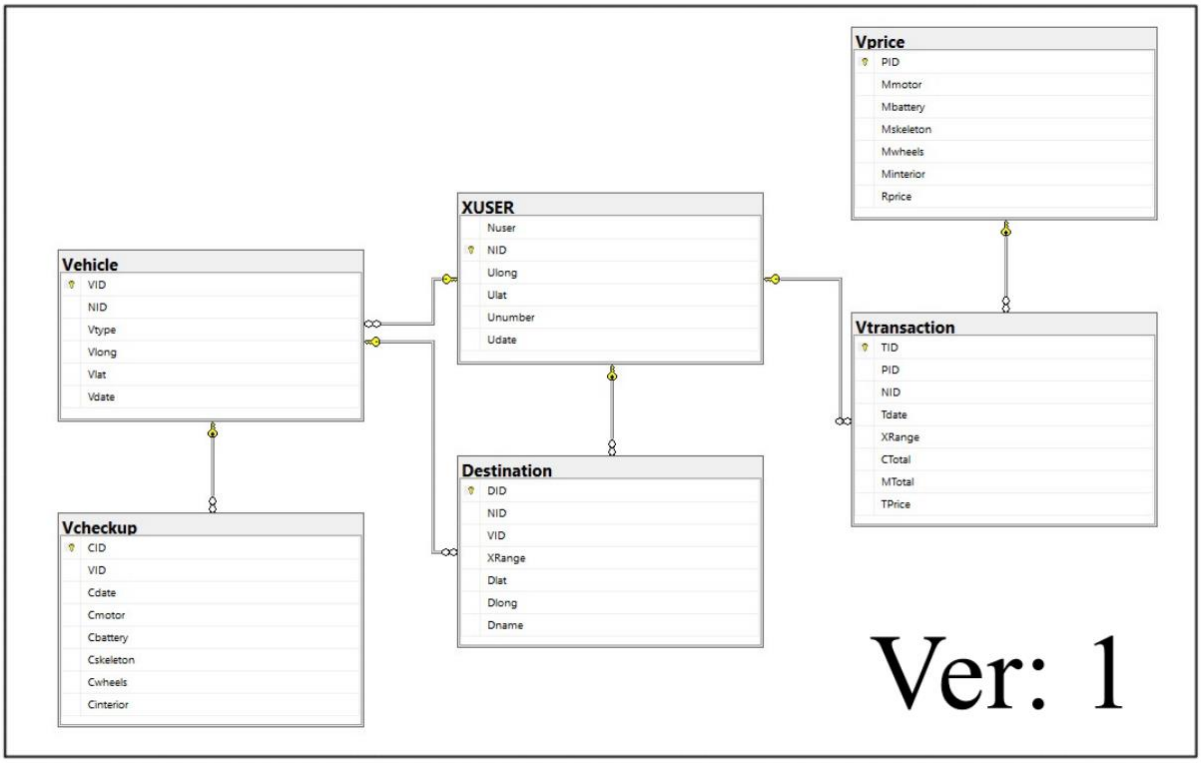
Number of Procedure : 12

1. Input
2. AddNewUser
3. AddNewVehicle
4. AddNewDestination
5. AddNewVcheckup
6. AddVtransaction
7. Display_Xuser
8. Display_NewVehicle
9. Display_Destination
10. Display_Vcheckup
11. Display_Vprice
12. Display_ Vtransaction

NORMALIZATION



SCHEMATIC DIAGRAM



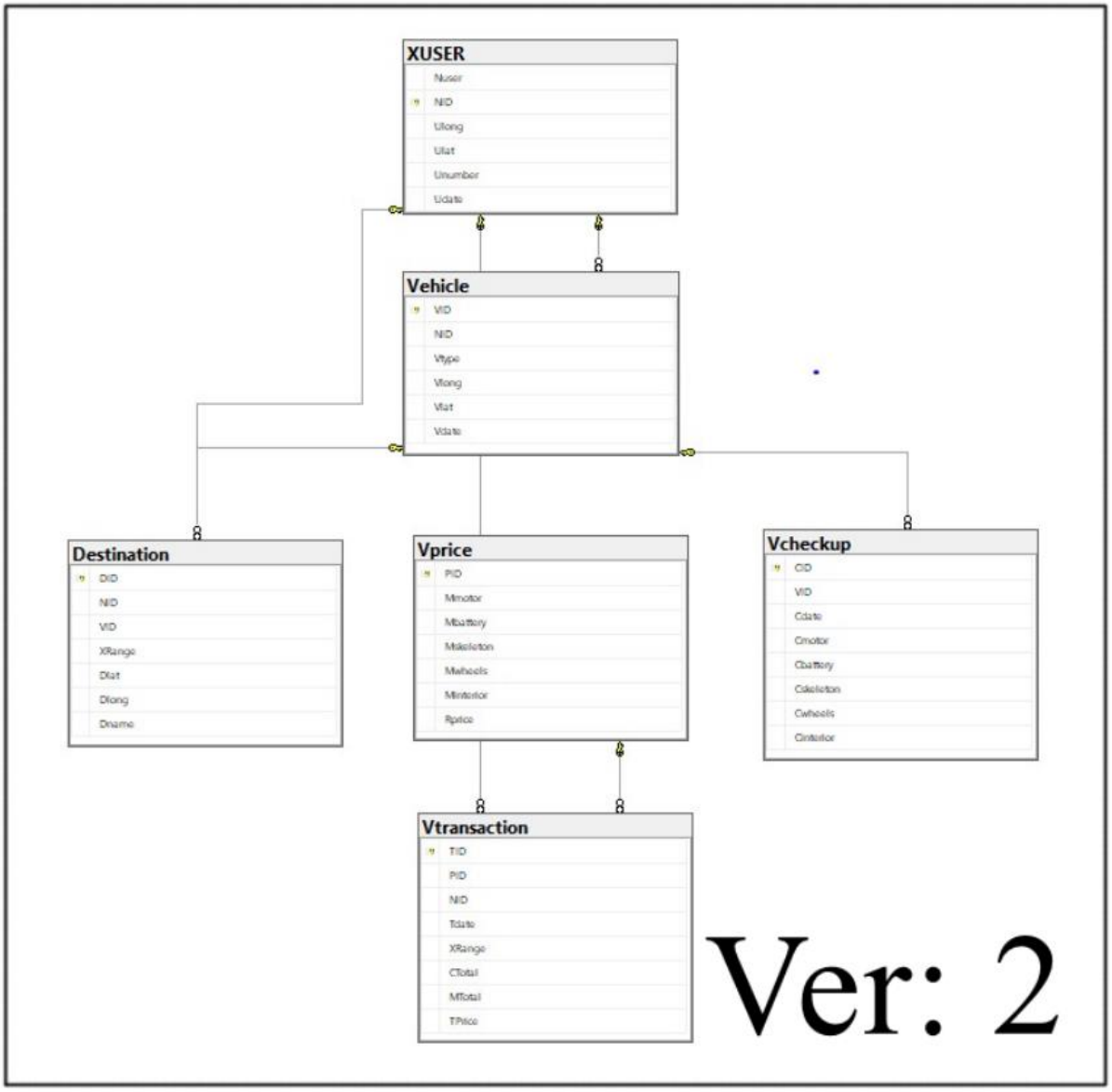

XUSER
Nuser
NID
Ulong
Ulat
Unumber
Udate
Vehicle
VID
NID
Vtype
Vlong
Vlat
Vdate
Destination
DID
NID
VID
XRange
Dlat
Dlong
Dname
Vprice
PID
Mmotor
Mbattery
Mskeleton
Mwheels
Minterior
Rprice
Vcheckup
CID
VID
Cdate
Cmotor
Cbattery
Cskeleton
Cwheels
Cinterior
Vtransaction
TID
PID
NID
Tdate
XRange
CTotal
MTotal
TPrice
Ver: 2

TABLE DESIGN & VALIDATION

DESIGN & VALIDATION TABLE

Xuser

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
Nuser	VARCHAR	25	Name of user	Nuser	Not Null
NID	INT	-	User Unique ID	NID	Primary key, Not Null
Ulong	FLOAT	-	User longitude coordinate	Ulong	Not Null
Ulat	FLOAT	-	User latitude coordinate	Ulat	Not Null
Unumber	INT	-	User phone number	Unumber	Not Null
Udate	DATE	-	User order date	Udate	Not Null

DESIGN & VALIDATION TABLE

Vprice

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
PID	INT	-	Price ID	PID	Not Null
Mmotor	INT	-	Motor basis price value of maintenance	Mmotor	Not Null
Mbattery	INT	-	Battery basis price value of maintenance	Mbattery	Not Null
Mskeleton	INT	-	Skeleton basis price value of maintenance	Mskeleton	Not Null
Mwheels	INT	-	Wheels basis price value of maintenance	Mwheels	Not Null
Minterior	INT	-	Interior basis price value of maintenance	Minterior	Not Null
RPrice	INT	-	Range basis price value per km	RPrice	Not Null

DESIGN & VALIDATION

Vehicle

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
VID	INT	-	User's vehicle ID	VID	Primary key, not null
NID	INT	-	User unique ID	NID	Foreign key, not null
Vtype	VARCHAR	11	User's vehicle type	Vtype	Not null
Vlong	FLOAT	-	User's vehicle longtitude	Vlong	Not null
Vlat	FLOAT	-	User's vehicle lattitude	Vlat	Not null
Cdate	VARCHAR	-	User's vehicle date registration	Cvdate	Not null

DESIGN & VALIDATION

Vcheckup

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
CID	INT	-	Checkup Number	CID	Primary key, not null
VID	INT	-	Vehicle ID	VID	Foreign key, not null
Cdate	DATE	-	Date when the checkup was performed	Cdate	Not null
Cmotor	INT	-	User's choice if the user want to check the motor or not	Cmotor	Not null, between -1 and 2
Cbattery	INT	-	User's choice if the user want to check the battery or not	Cbattery	Not null, between -1 and 2
Cskeleton	INT	-	User's choice if the user want to check the skeleton or not	Cskeleton	Not null, between -1 and 2
Cwheels	INT	-	User's choice if the user want to check the wheels or not	Cwheels	Not null, between -1 and 2
Cinterior	INT	-	User's choice if the user want to check the interior or not	Cinterior	Not null, between -1 and 2

DESIGN & VALIDATION TABLE

Destinatin

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
DID	INT	-	Destination Unique ID	DID	Primary Key, Not Null
NID	INT	-	User Unique ID	NID	Foreign key, Not Null
VID	INT	-	Vehicle Unique ID	VID	Foreign Key ,Not Null
Xrange	INT	-	Destination Range	Xrange	Not Null
Dlat	FLOAT	-	Destination Latitude	Dlat	Not Null
Dlong	FLOAT	-	Destination Longtitude	Dlong	Not Null
Dname	VARCHAR	15	Name of Destination	Dname	Not Null

DESIGN & VALIDATION TABLE

Vtransaction

Column	Data Type	Width	Description	Validation	Method(s) Used for Validation
TID	INT	-	Transaction Unique ID	TID	Primary Key, Not Null
PID	INT	-	Price Unique ID	PID	Foreign key, Not Null
NID	INT	-	User Unique ID	NID	Foreign Key ,Not Null
Tdate	DATE	-	Transaction Date	Tdate	Not Null
Xrange	TINYINT	-	Destination Range	Xrange	Not Null
Ctotal	BIGINT	-	Total Vehicle Checkup	Ctotal	Not Null
Mtotal	BIGINT	-	Total Money of Checkup	Mtotal	Not Null
Tprice	VARCHAR	10	Total Price	Tprice	Not Null

CONFIGURATION

Requirement:

Hard Disk : SQL Server requires a minimum of 6 GB of available hard-disk space.

Disk space requirements will vary with the SQL Server components you installment

Monitor : SQL Server requires Super-VGA (800x600) or higher resolution monitor.

Internet : Internet functionality requires Internet access (fees may apply).

Memory:

Minimum:

Express Editions: 512 MB

All other editions: 1 GB

Recommended:

Express Editions: 1 GB

All other editions: At least 4 GB and should be increased as database size increases to ensure optimal performance.

Processor Speed : Minimum: x64 Processor: 1.4 GHz

Recommended : 2.0 GHz or faster

Processor Type : x64 Processor: AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support

Operating system : Windows 10 TH1 1507 or greater

Windows : Server 2016 or greater

.NET Framework : Minimum operating systems includes minimum .NET framework.

Network Software : Supported operating systems for SQL Server have built-in network software.

Named and default instances of a stand-alone installation support the following network protocols:

Shared memory, Named Pipes, and TCP/IP.