Ministry of Higher Education

Pyramids High Institute (PHI) for Engineering and Technology

Electronics and Communication Engineering Department

Graduation Project:

Design and Realization of Car Tracking via AI Implementation

Presented By:

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Asmaa Mohamed	Mohamed Alaa
Mohamed Hossam	Mohamed Nageh
Mahmoud Gaballah	Moamen Mohamed

Supervised By:

Prof. Gamal El-Sheikh

Prof. Esraa Al-Rifa

Cairo 2024_2025

Task	Category	Assigned	Status
Search on available GPS Modules	GPS	Mohamed Alaa	
Search on how to get speed of car	GPS	Mohamed Hossam	
Search on available modules which provide digital compass	GPS	Mahmoud Genesh	
Search on how to save location data in local Server	GPS	Mohamed Alaa	
Search on how to make a Safe Radius zone for the car	GPS	Mohamed Hossam	
Search on how to make a path for the car to go to specific location.	GPS	Mahmoud Genesh	
Make an Arduino code to get let and long data	GPS	Mohamed Alaa	
Apply window size filter to enhance the data	GPS	Mohamed Hossam	
Select Suitable Format of Speed (km per hour or m per sec)	GPS	Mahmoud Genesh	
Select Suitable Module for speed	GPS	Mohamed Alaa	
Test the compass on Self-Driving Car	GPS	Mohamed Hossam	
Make an Arduino code to save data on SD card	GPS	Mahmoud Genesh	
Integrate GPS tracking with Monitoring web application	GPS	Mohamed Alaa	
Make an Arduino code to alert if moves out of the safe zone	GPS	Mohamed Hossam	
Draw the path in web application tracking part	GPS	Mahmoud Genesh	
Search on available SIM modules which provide (2g , 3g or 4g)	GSM	Abdo Shrief	
Select Suitable module with its antenna for our needs	GSM	Sondos Reda	
Make An Arduino code to test AT commands In module	GSM	Abdo Shrief	
Provide a list of useful AT commands	GSM	Sondos Reda	
Make a function to perform AT commands	GSM	Abdo Shrief	
Make a function to Send SMS to Specific numbers	GSM	Sondos Reda	
Make a function to provide call making	GSM	Abdo Shrief	
Test sending message to the owner in case of un-known driver	GSM	Sondos Reda	
Send SMS with location data to the owner if required	GSM	Abdo Shrief	
Make a function to read received SMS	GSM	Sondos Reda	

Make a function to receive calls	GSM	Abdo Shrief	
Send SMS emergency message is network is un-available	GSM	Sondos Reda	
Make a connection with web endpoints	GSM	Abdo Shrief	
Search on samples of required design	3d	Moumen Murad	
Select a demo size and shape for the project	3d	Mohamed Alaa	
Start design with blender or any 3d design apps	3d	Moumen Murad	
Specify the inner part design	3d	Mohamed Alaa	
Search on how to import the battery on design	3d	Moumen Murad	
Select suitable place for battery and antenna	3d	Mohamed Alaa	
Provide the overall design	3d	Moumen Murad	
Search on some 3d printing places to print the design	3d	Mohamed Alaa	
Make a cost plan for the design and materials	3d	Moumen Murad	
Perform the design and install the components	3d	Mohamed Alaa	
Add turn speed in corners to the Web app	S.D Car	Moumen Murad	
Search on how to use Ultrasonic in the car and place them	S.D Car	Moumen Murad	
Make an Arduino function to avoid obstacles	S.D Car	Sondos Reda	
Apply obstacles avoidance in path part	S.D Car	Sondos Reda	
Try applying obstacles avoidance in sequence part	S.D Car	Sondos Reda	
Enhance the distance calculation	S.D Car	Sondos Reda	
Search on available AI models for object detection	A.I	Asmaa Muhamed	
Search on Neural Network and how to test and train models	A.I	Asmaa Muhamed	
Provide a suitable model providing Animal detection	A.I	Asmaa Muhamed	
Provide a suitable model providing Animal classification	A.I	Asmaa Muhamed	
Provide a suitable model providing Car detection	A.I	Asmaa Muhamed	
Provide a suitable model providing Car Classification	A.I	Asmaa Muhamed	
Provide a suitable model providing Signs detection	A.I	Asmaa Muhamed	
Provide a suitable model providing Signs Classification	A.I	Asmaa Muhamed	

Provide a suitable model providing Traffic Lights detection	A.I	Abdo Shrief	
Provide a suitable model providing Face detection	A.I	Abdo Shrief	
Provide a suitable model providing Face recognition	A.I	Abdo Shrief	
Train the model for known drivers	A.I	Abdo Shrief	
Test if the model can detect un-known drivers	A.I	Abdo Shrief	
Send a message to main controller if there is un-known driver	A.I	Abdo Shrief	

Phase 1 (Weeks 1 : 4)

Task	Category	Assigned	Status
Search on GPS Theory	GPS		
Search on available GPS Modules	GPS		
Search on how to get speed of car	GPS		
Search on available GSM Modules	GSM		
Search on suitable battery system	Power		
Search on Step-Down Modules	Power		
Search on different microcontrollers	M.C		
Design Home Page in Web App	Figma		
Design Manual Control Page in Web App	Figma		
Design Live Stream Page in Web App	Figma		
Design Login Page in Web App	Figma		
Design Register Page in Web App	Figma		
Add turn speed in corners to the Web app Design	Figma		
Code turn speed in corners to the Web app	S.D Car		
Use Ultrasonic in the car and place them	S.D Car		
Make an Arduino function to avoid obstacles	S.D Car		
Apply obstacles avoidance in path part	S.D Car		
Try applying obstacles avoidance in sequence part	S.D Car		
Enhance the distance calculation	S.D Car		