



Department of Computer Science and Engineering  
College of Engineering  
Qatar University

## Senior Project Report

Intelligent Mobile Target Visitation of a UAV using DRL:  
A Practical Implementation of the Work by Hendawy *et al.*

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2021

This project report is submitted to the Department of Computer Science and Engineering of Qatar University in partial fulfillment of the requirements of the Senior Project course.

## 1 Declaration

2 This report has not been submitted for any other degree at this or any other University. It is  
3 solely the work of us except where cited in the text or the Acknowledgements page. It describes  
4 work carried out by us for the capstone design project. We are aware of the university's policy  
5 on plagiarism and the associated penalties and we declare that this report is the product of our  
6 own work.

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## 13 **Abstract**

14 Hello, here is some text without a meaning. This text should show what a printed text will  
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## 21 **Acknowledgment**

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# 1 Introduction and Motivation

## 1.1 Problem statement

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## 1.2 Project significance

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## 1.3 Project objectives

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# 2 Background and Related Work

## 2.1 Background

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## 2.2 Related work

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## 3 Requirements Analysis

### 3.1 Functional requirements

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### 3.2 Design constraints

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### 3.3 Design standards

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### 140 **3.4 Professional code of ethics**

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### 148 **3.5 Assumptions**

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151 information? Is there a difference between this text and some nonsense like “Huardest gefburn”?  
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## 156 **4 Proposed Solution**

### 157 **4.1 Solution overview**

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159 look like at this place. If you read this text, you will get no information. Really? Is there no  
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163 alphabet and it should be written in of the original language. There is no need for special content,  
164 but the length of words should match the language.

### 165 **4.2 High level architecture**

166 Hello, here is some text without a meaning. This text should show what a printed text will  
167 look like at this place. If you read this text, you will get no information. Really? Is there no  
168 information? Is there a difference between this text and some nonsense like “Huardest gefburn”?  
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### 4.3 Hardware/software to be used

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## 5 Proof of Concept

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## 6 Market Research and Business Viability

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## 7 Project Plan

### 7.1 Project milestones

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## 7.2 Project timeline

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## 7.3 Anticipated risks

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# 8 Short Guide

Please read the guides available online about the right way to write  $\LaTeX$  such as how to include a math symbol in text (e.g.  $x$  not x) and a proper noun with all capitals (e.g. SQL not SQL).

Below are examples of different constructs in a report. You can copy-paste and change the content. For more information, refer to the relevant package manual in CTAN.

## 8.1 Figure



Figure 1: The arch linux logo

## 228 8.2 Equations

$$E_p = mgh = mg(x_f - x_i) \quad (1)$$

$$E_k = E_t + E_r$$

$$E_t = \frac{1}{2}mv^2 \quad (2)$$

$$E_r = \frac{1}{2}I\omega^2 \quad (3)$$

$$I = \frac{1}{2}MR^2 \quad (4)$$

$$\omega = \frac{v}{r}$$

$$E_k = \frac{1}{2}mv^2 + \frac{1}{2}I\left(\frac{v}{r}\right)^2 \quad (5)$$

229 where  $E_p$  is the potential energy,  $E_k$  the kinetic energy,  $E_t$  the translational energy and  $E_r$  the  
230 rotational energy.

$$\begin{aligned} \frac{\partial E_p}{\partial m} &= \frac{\partial}{\partial m}(mgh) \\ &= gh \end{aligned}$$

$$\begin{aligned} \frac{\partial E_p}{\partial g} &= \frac{\partial}{\partial g}(mgh) \\ &= mh \end{aligned}$$

$$\begin{aligned} \frac{\partial E_p}{\partial h} &= \frac{\partial}{\partial h}(mgh) \\ &= mg \end{aligned}$$

## 231 8.3 Simple table

Table 1: Slope, intercept and their uncertainties

Slope		Intercept (J)	
Value	Error	Value	Error
1.0933	0.0300	0.0148	0.0157

Table 2: Translational and rotational energies.

$m$ kg	$v_m$ $\text{m s}^{-1}$	$E_t$ J	$\delta E_t$ J	$E_r$ J	$\delta E_r$ J
0.055	0.17	0.000 79	0.000 01	0.280	0.007
0.075	0.20	0.001 50	0.000 02	0.387	0.010
0.095	0.23	0.002 51	0.000 03	0.512	0.013
0.115	0.25	0.003 59	0.000 03	0.605	0.015
0.135	0.27	0.004 92	0.000 04	0.706	0.018

## 233 8.5 Graph from a csv file

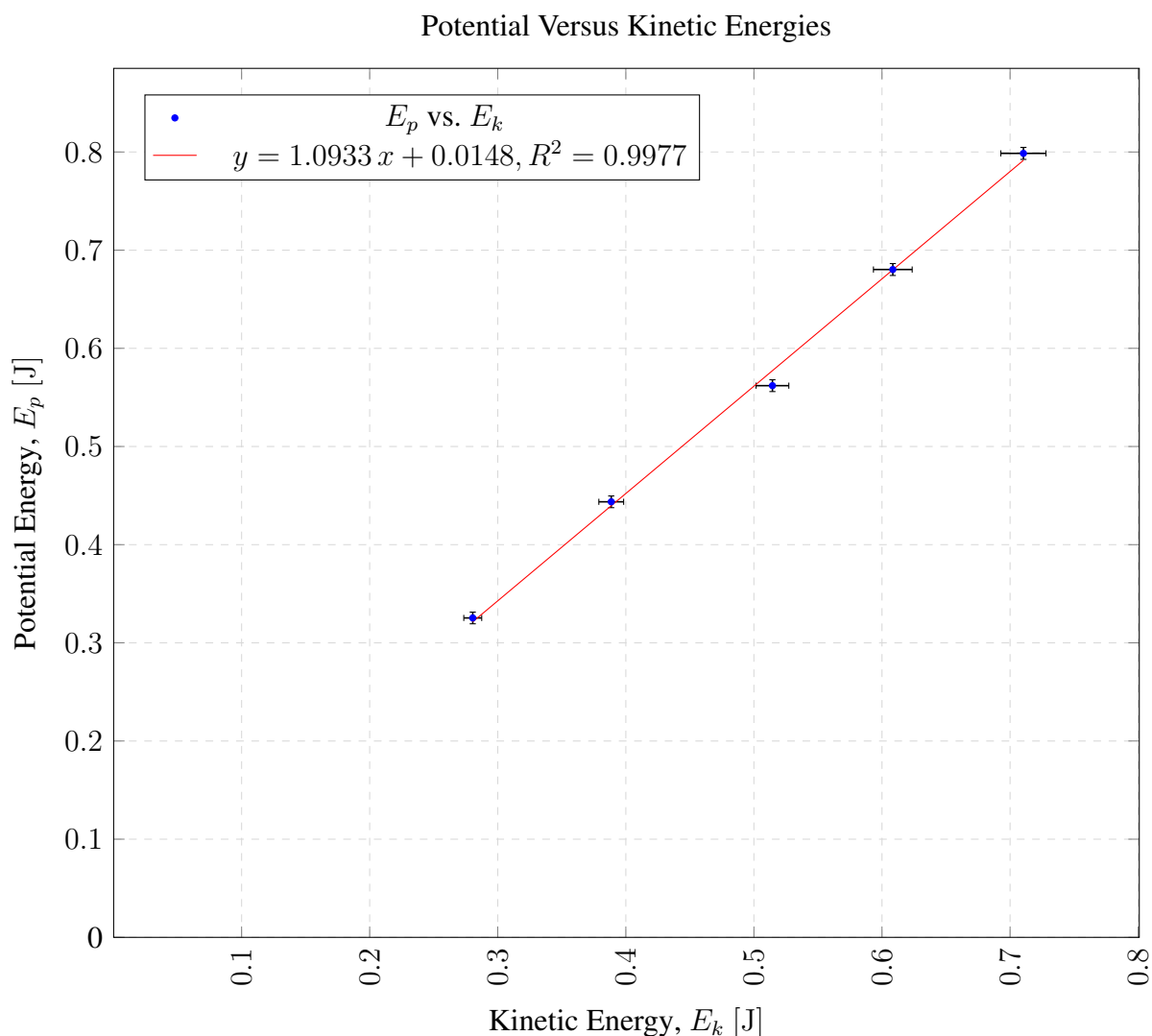


Figure 2: The relationship between potential and kinetic energies.

## 234 8.6 Citations

- 235 • **in-text citation:** use `\cite{dirac}` to produce **dirac** or `\textcite{dirac}` to  
 236 produce **dirac**
- 237 • **citation in parentheses:** `\parencite{knuthwebsite}` produces [knuthwebsite]  
 238 (for IEEE, this has no difference to the `\cite{}` command above.)

## 239 8.7 Cross-references

240 Label using suitable names with the following format: figure `\label{fig:<name>}`, tables  
 241 `\label{tab:<name>}`, sections `\label{sec:<name>}` and equations

242 `\label{eq:<name>}`.

243     **Then when cross-referencing, use `\cref{<type>:<name>}`**

244 **(or `\Cref{<type>:<name>}` when used at the beginning of a sentence)**



## 245 **Appendix**

246 Hello, here is some text without a meaning. This text should show what a printed text will  
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