

# Drawing examples in L<sup>A</sup>T<sub>E</sub>X

GIUSEPPE SILANO

August 25, 2019

# Contents

<b>Introduction</b>	<b>i</b>
The aim of document . . . . .	i
<b>1 Block Diagram</b>	<b>1</b>
1.1 Example 1 . . . . .	1
1.2 Example 2 . . . . .	1
1.3 Example 3 . . . . .	2
1.4 Example 4 . . . . .	2
1.5 Example 5 . . . . .	3
1.6 Example 6 . . . . .	3
1.7 Example 7 . . . . .	3
1.8 Example 8 . . . . .	4
1.9 Example 9 . . . . .	4
1.10 Example 10 . . . . .	5
1.11 Example 11 . . . . .	5
1.12 Example 12 . . . . .	6
1.13 Example 13 . . . . .	6
1.14 Example 14 . . . . .	7
1.15 Example 15 . . . . .	7
1.16 Example 16 . . . . .	7
1.17 Example 17 . . . . .	8
1.18 Example 18 . . . . .	8
1.19 Example 19 . . . . .	9
1.20 Example 20 . . . . .	9
1.21 Example 21 . . . . .	10
1.22 Example 22 . . . . .	10
1.23 Example 23 . . . . .	11
1.24 Example 24 . . . . .	11
1.25 Example 25 . . . . .	12
1.26 Example 26 . . . . .	13
<b>2 Matlab Plots</b>	<b>14</b>
2.1 Example 1 . . . . .	14
2.2 Example 2 . . . . .	15
2.3 Example 3 . . . . .	15

## CONTENTS

---

2.4	Example 4 . . . . .	16
<b>3</b>	<b>Drawing on Images</b>	<b>17</b>
3.1	Example 1 . . . . .	17
3.2	Example 2 . . . . .	18
3.3	Example 3 . . . . .	18
3.4	Example 4 . . . . .	19
3.5	Example 5 . . . . .	19
3.6	Example 6 . . . . .	20
3.7	Example 7 . . . . .	20
3.8	Example 8 . . . . .	21
3.9	Example 9 . . . . .	22
<b>4</b>	<b>Various</b>	<b>23</b>
4.1	Example 1 . . . . .	23
4.2	Example 2 . . . . .	23
4.3	Example 3 . . . . .	24
4.4	Example 4 . . . . .	24
4.5	Example 5 . . . . .	25
4.6	Example 6 . . . . .	25
4.7	Example 7 . . . . .	25
4.8	Example 8 . . . . .	26
4.9	Example 9 . . . . .	26
4.10	Example 10 . . . . .	27
4.11	Example 11 . . . . .	27
4.12	Example 12 . . . . .	27
4.13	Example 13 . . . . .	28
4.14	Example 14 . . . . .	28
4.15	Example 15 . . . . .	29
4.16	Example 16 . . . . .	29
4.17	Example 17 . . . . .	29
4.18	Example 18 . . . . .	30
4.19	Example 19 . . . . .	30
4.20	Example 20 . . . . .	31
4.21	Example 21 . . . . .	31
4.22	Example 22 . . . . .	32
4.23	Example 23 . . . . .	32
4.24	Example 24 . . . . .	33
4.25	Example 25 . . . . .	33

---

# Introduction

## The aim of document

The aim of this file is to help people interested in learning how to use L<sup>A</sup>T<sub>E</sub>X for drawing. In particular, already structured examples will help to develop one's own through the source code provided. The draws have been made during my research activity as PhD candidate.

The file is divided into four main chapters (parts):

- *Block Diagrams* (see Ch. 1): this part contains block diagrams;
- *Matlab Plots* (see Ch. 2): this part contains MATLAB<sup>®</sup> and the MATLAB package *matlab2tikz*<sup>1</sup>.
- *Drawing on Images* (see Ch. 3): this part contains draws made on image files;
- *Various* (see Ch. 4): this part contains several drawings that do not belong to the sections listed above.

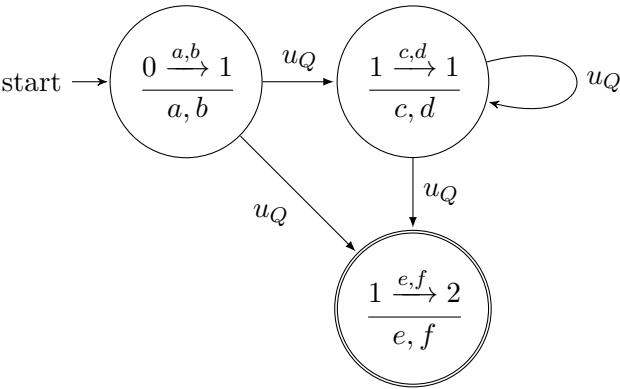
---

<sup>1</sup>It is available at the link <https://github.com/matlab2tikz/matlab2tikz>

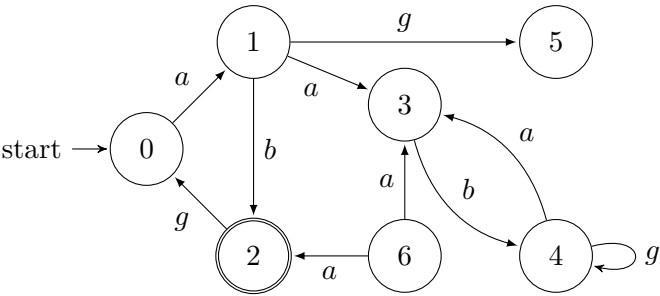
# Chapter 1

# Block Diagram

## 1.1 Example 1



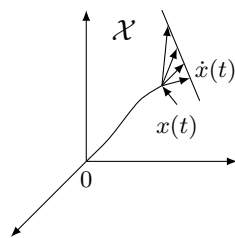
## 1.2 Example 2



### 1.3 Example 3

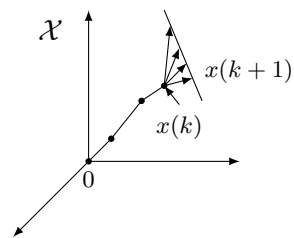
*Continuous-time:*

$$\begin{aligned}\dot{x}(t) &= Ax(t) + Bu(t) \\ y(t) &= Cx(t)\end{aligned}$$

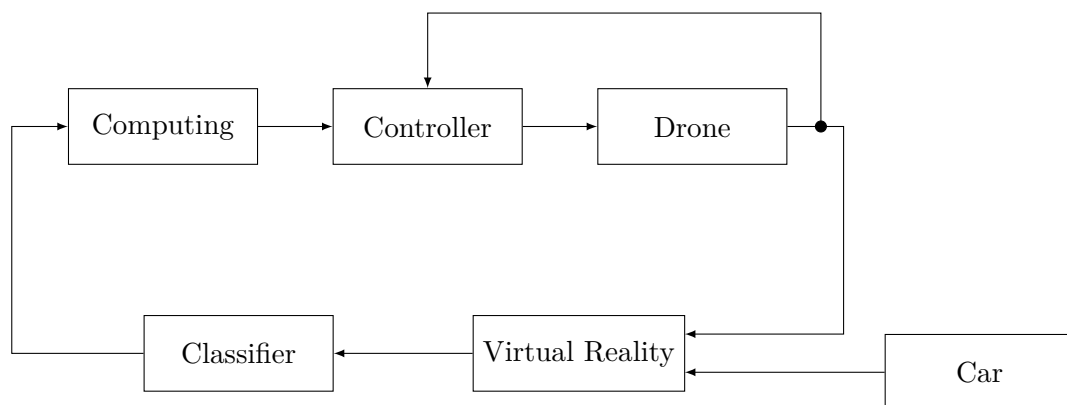


*Discrete-time:*

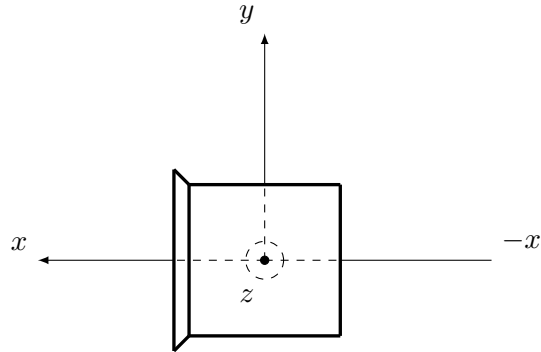
$$\begin{aligned}x(k+1) &= Ax(k) + Bu(k) \\ y(k) &= Cx(k)\end{aligned}$$



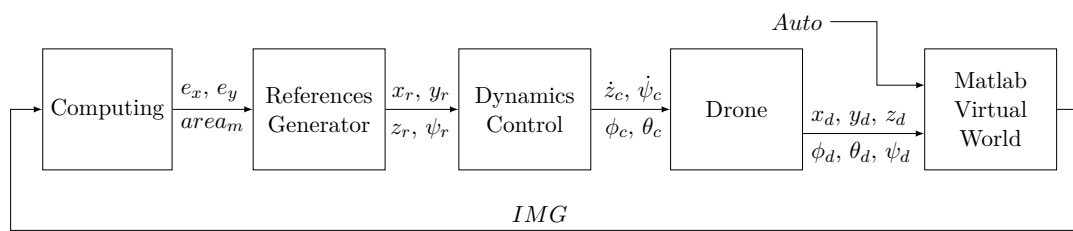
### 1.4 Example 4



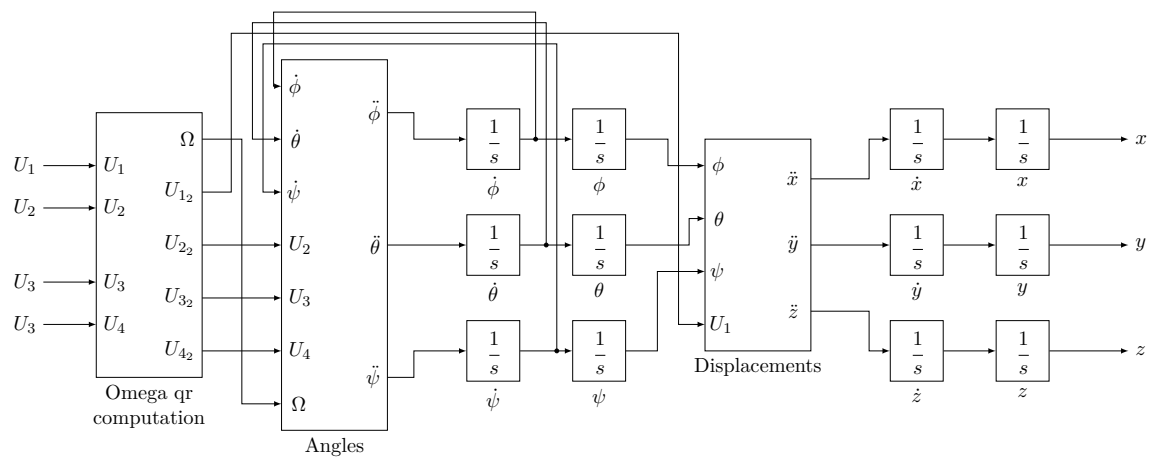
## 1.5 Example 5



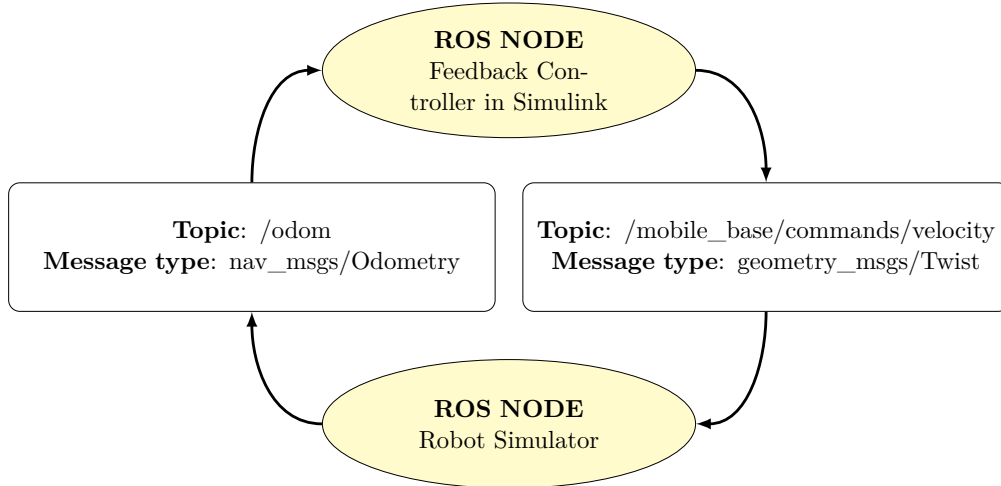
## 1.6 Example 6



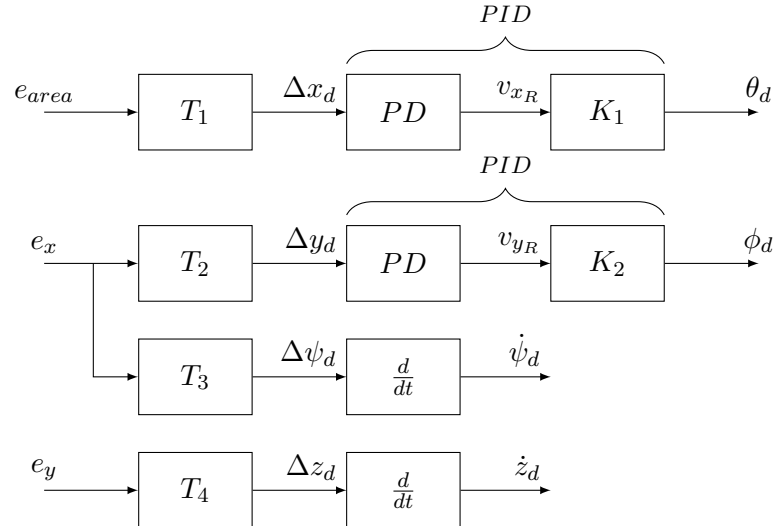
## 1.7 Example 7



## 1.8 Example 8

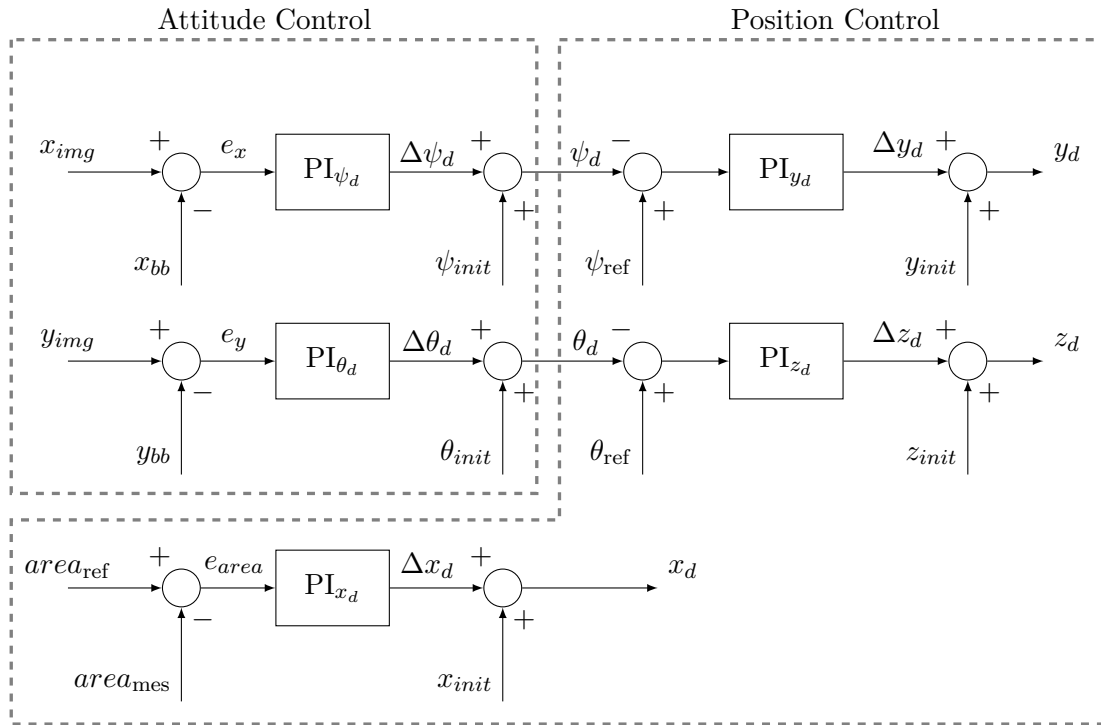


## 1.9 Example 9

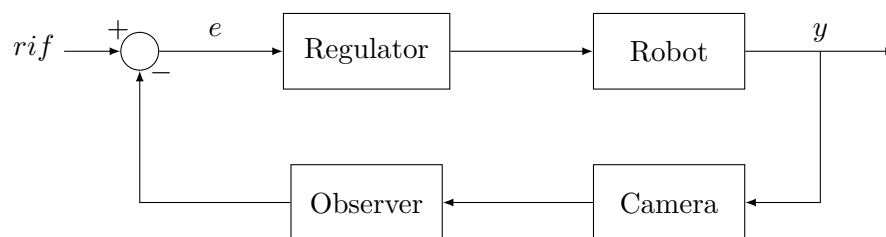




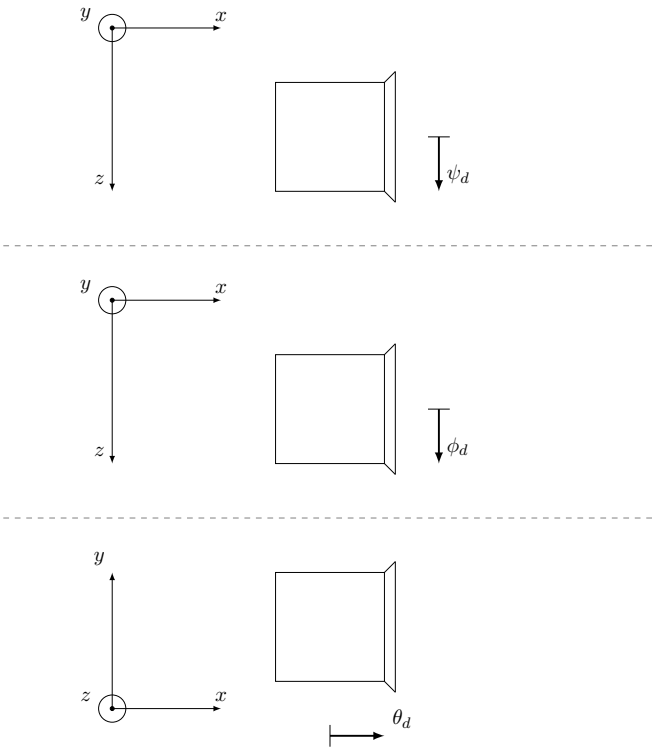
## 1.10 Example 10



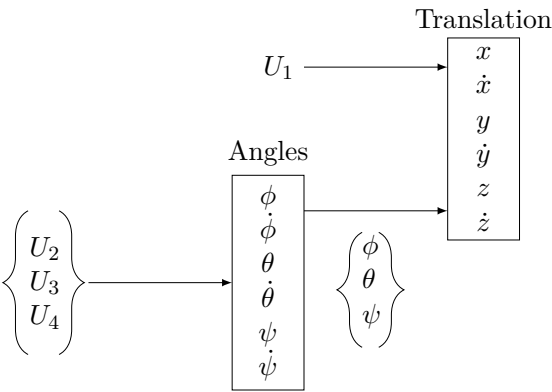
## 1.11 Example 11



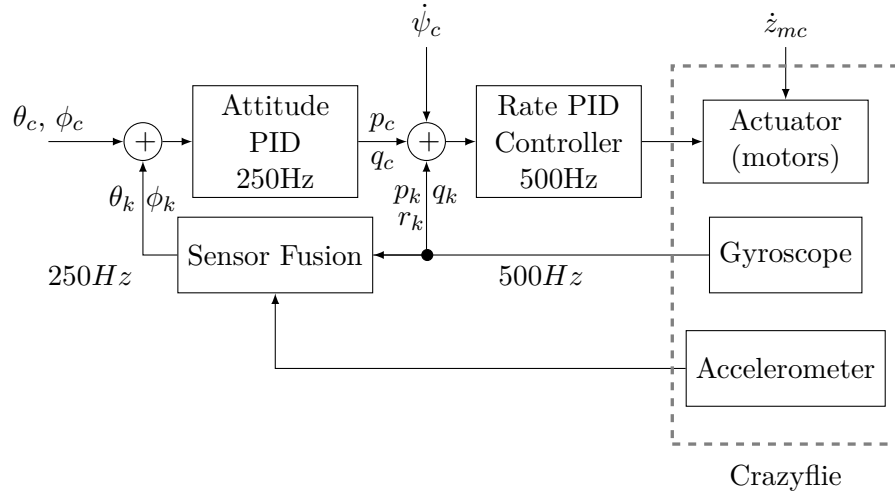
1.12 Example 12



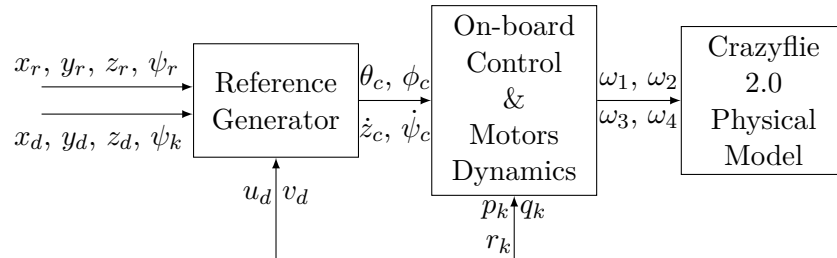
1.13 Example 13



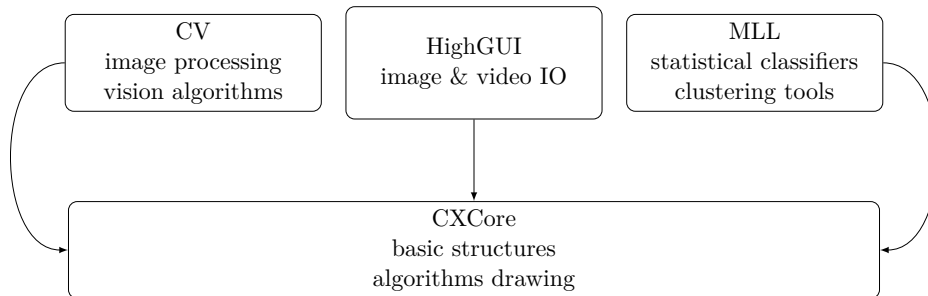
## 1.14 Example 14



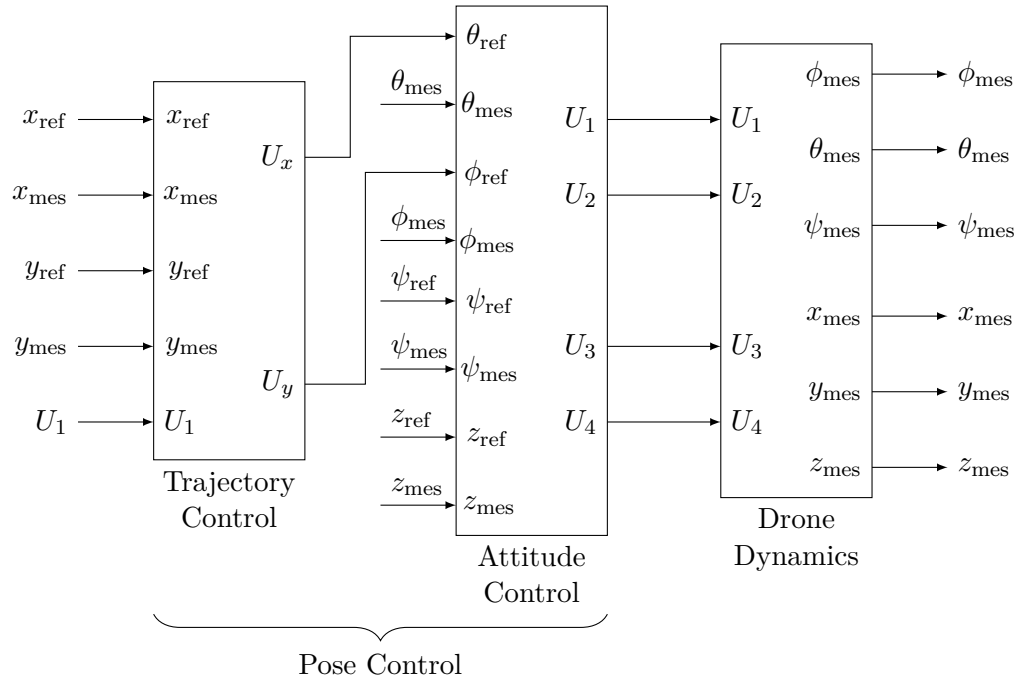
## 1.15 Example 15



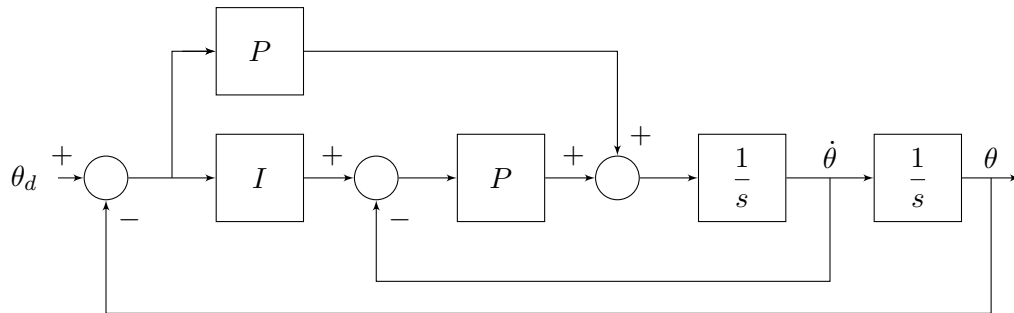
## 1.16 Example 16



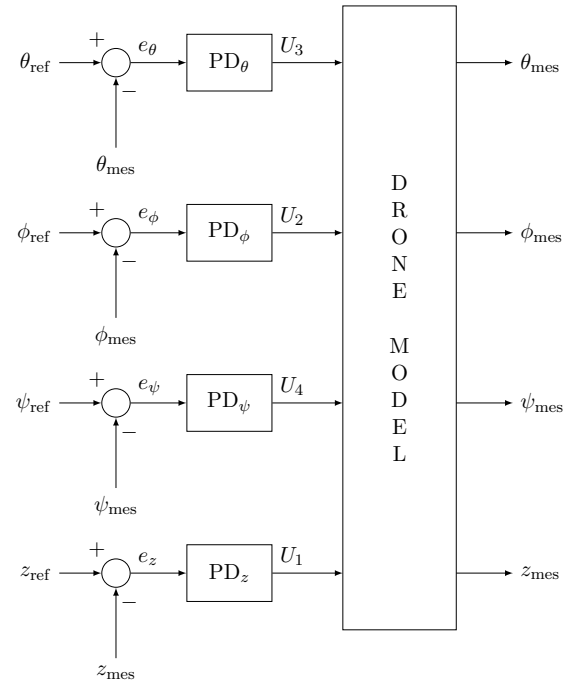
## 1.17 Example 17



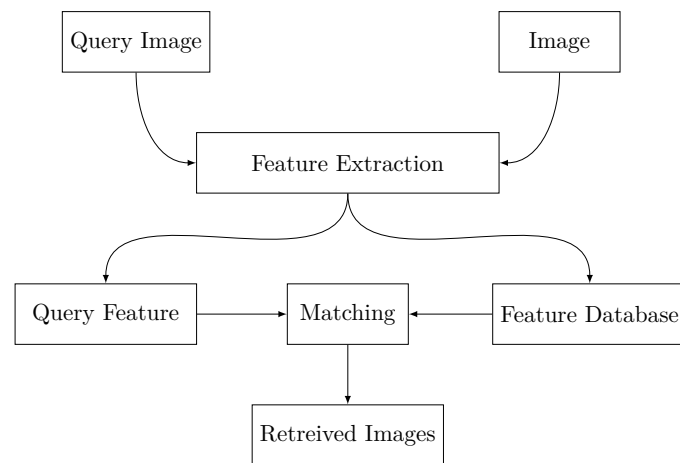
## 1.18 Example 18



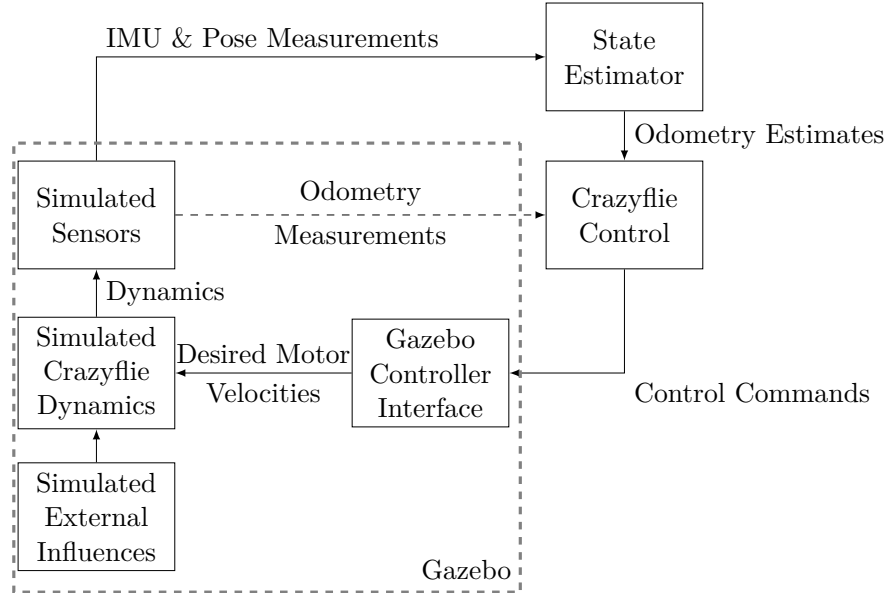
## 1.19 Example 19



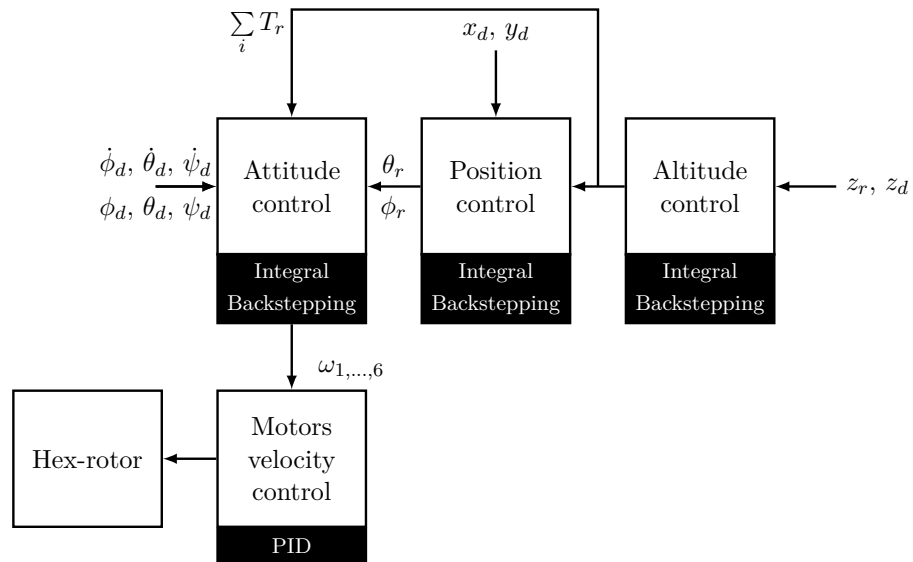
## 1.20 Example 20



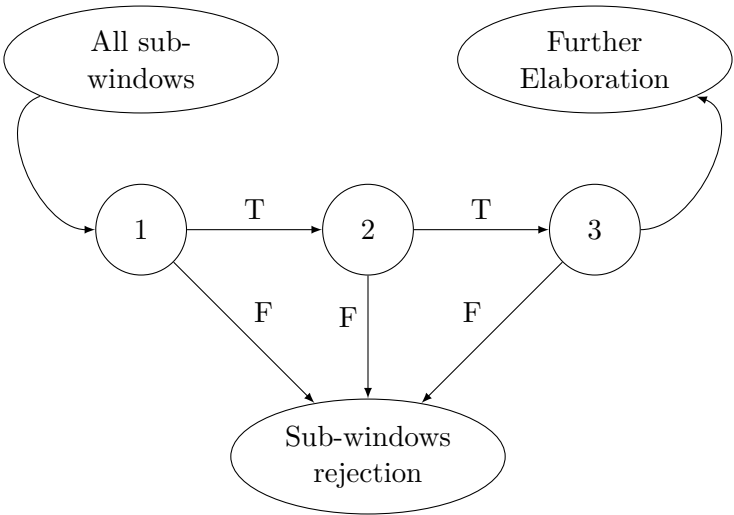
## 1.21 Example 21



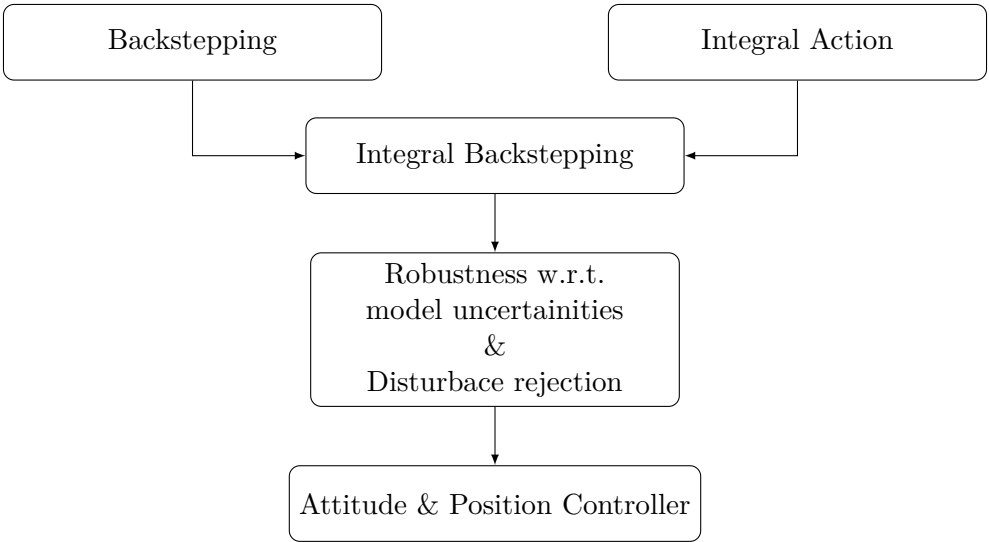
## 1.22 Example 22



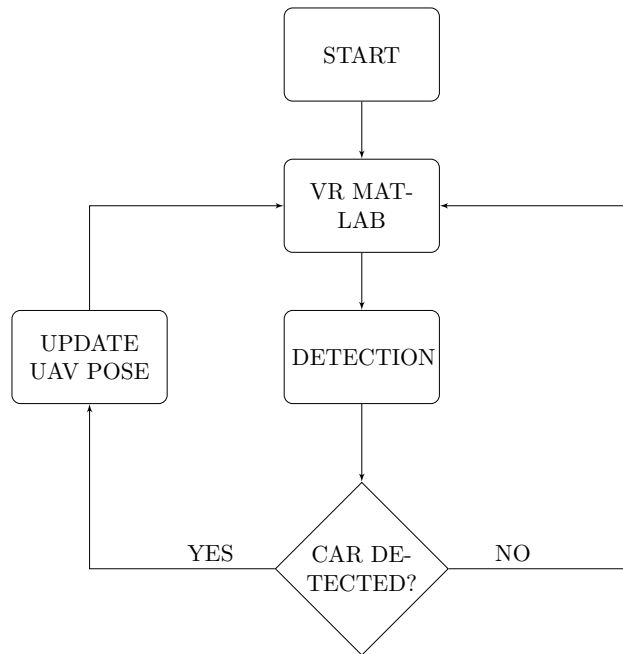
1.23 Example 23



1.24 Example 24

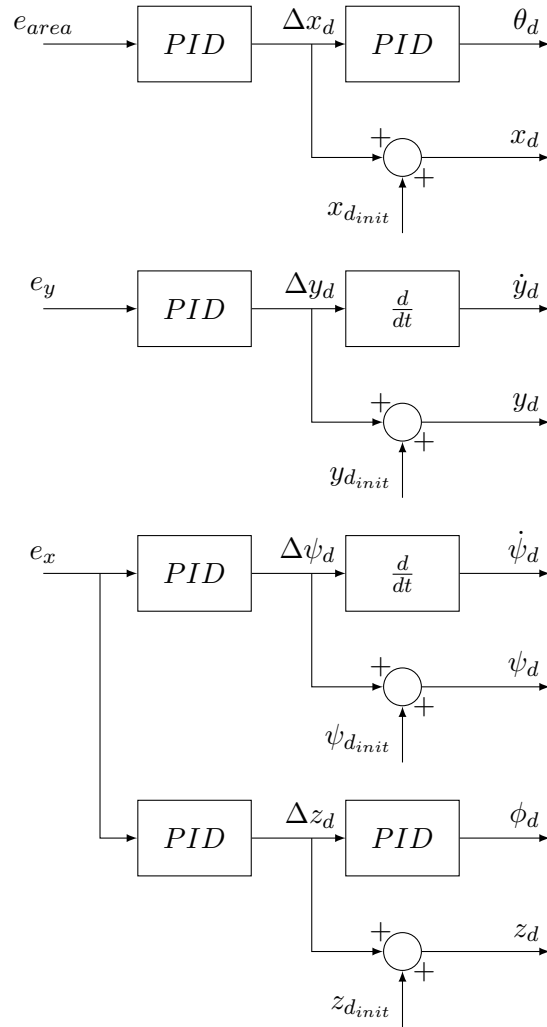


## 1.25 Example 25





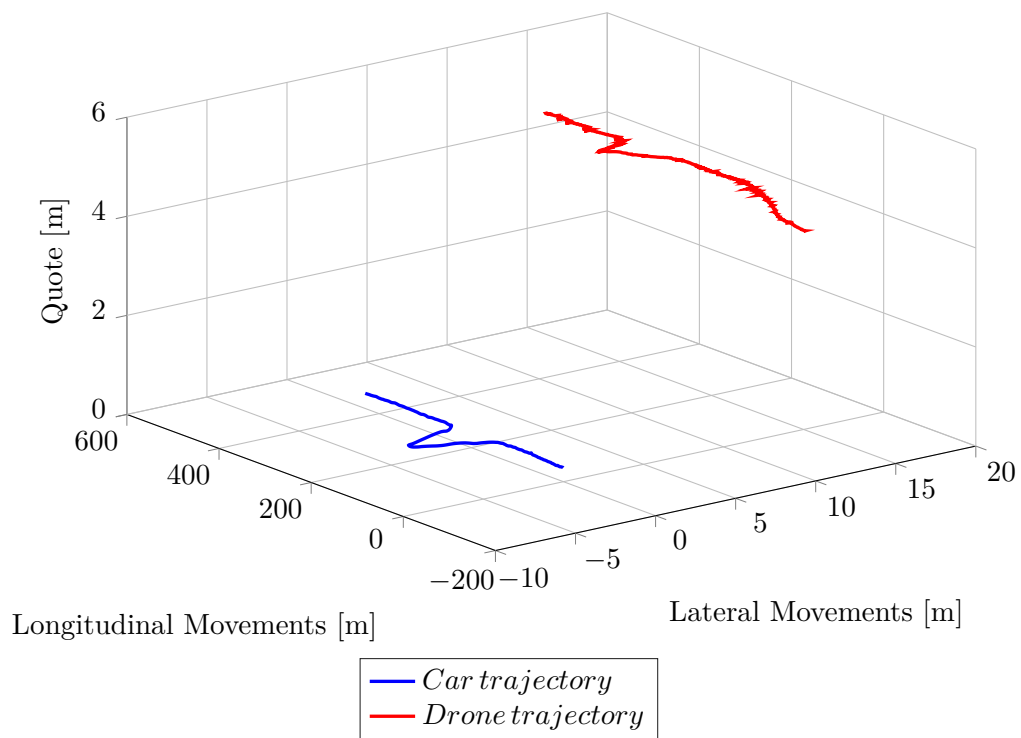
## 1.26 Example 26



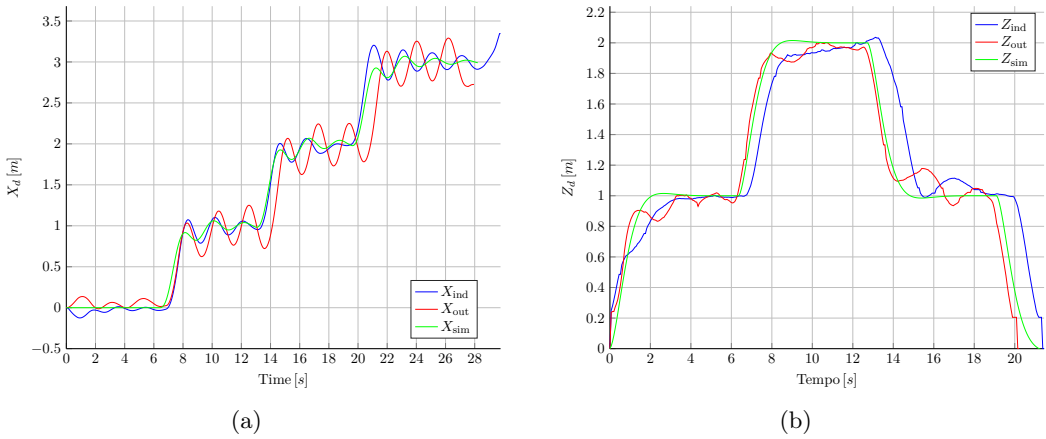
## Chapter 2

# Matlab Plots

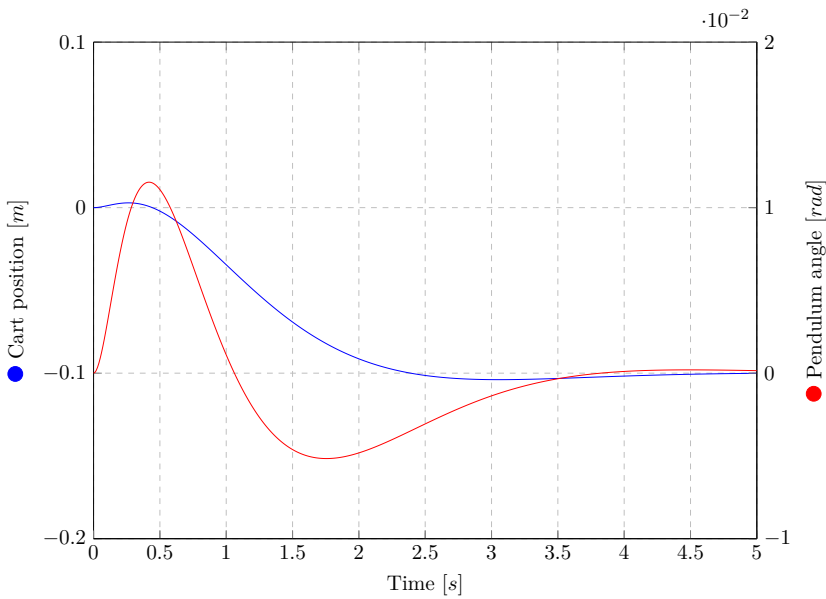
### 2.1 Example 1



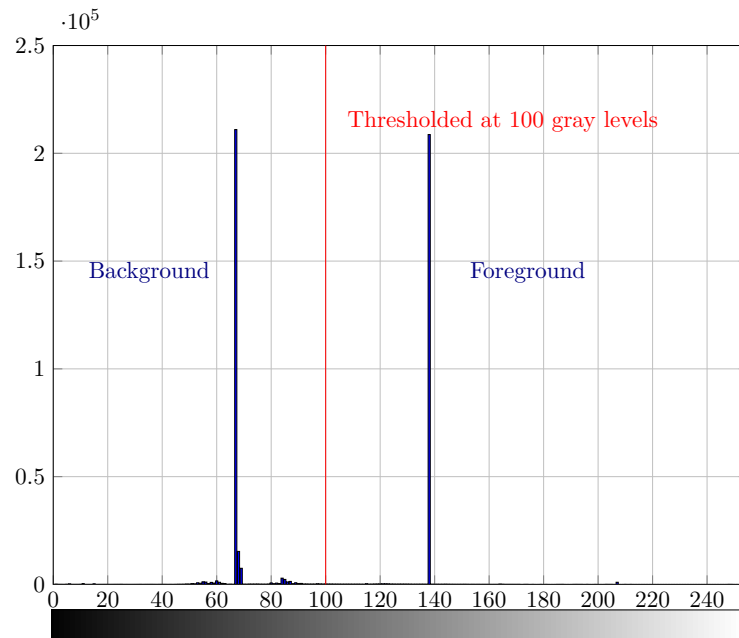
2.2 Example 2



2.3 Example 3



## 2.4 Example 4

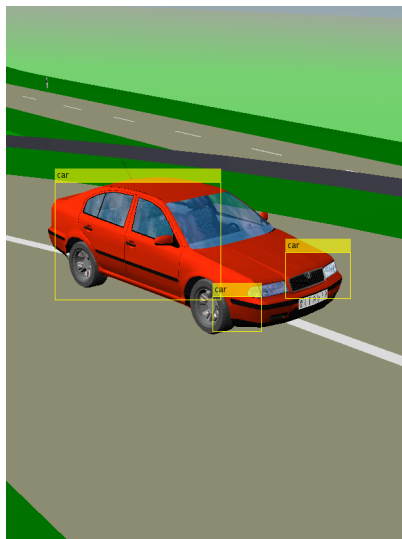


## Chapter 3

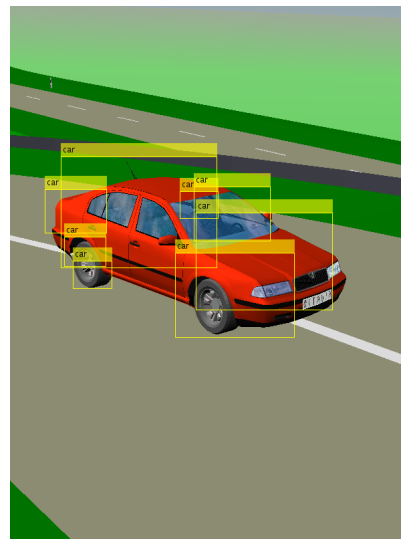
# Drawing on Images

### 3.1 Example 1

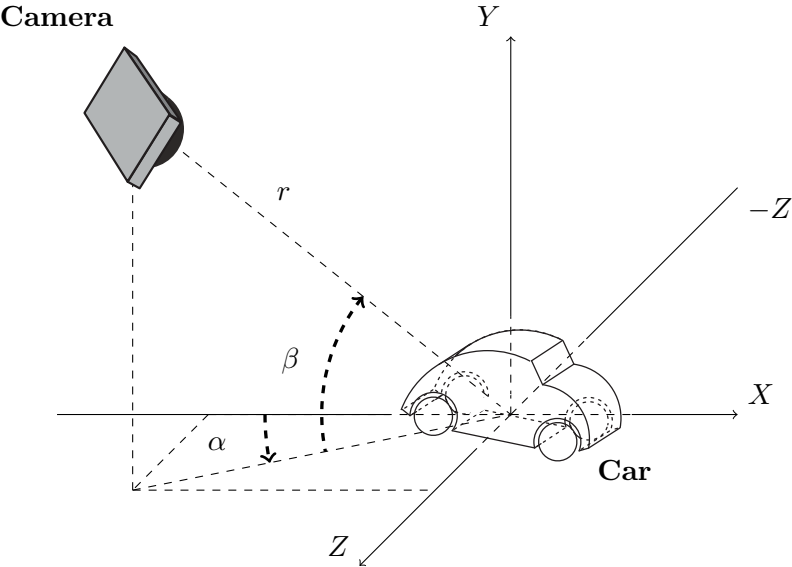
Haar cascade



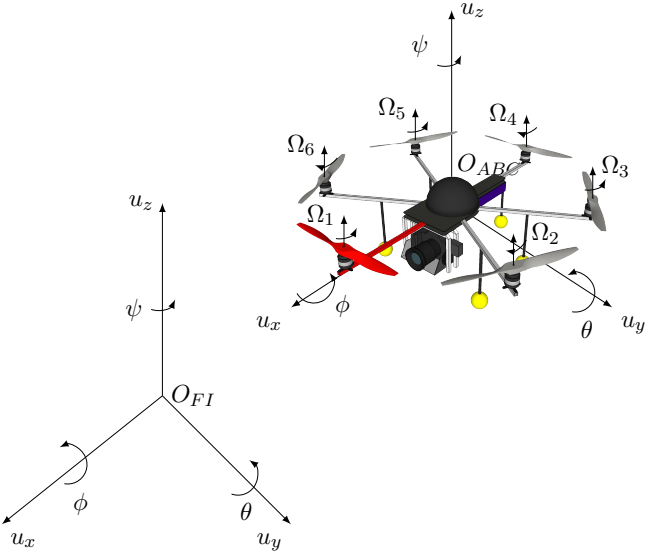
HOG



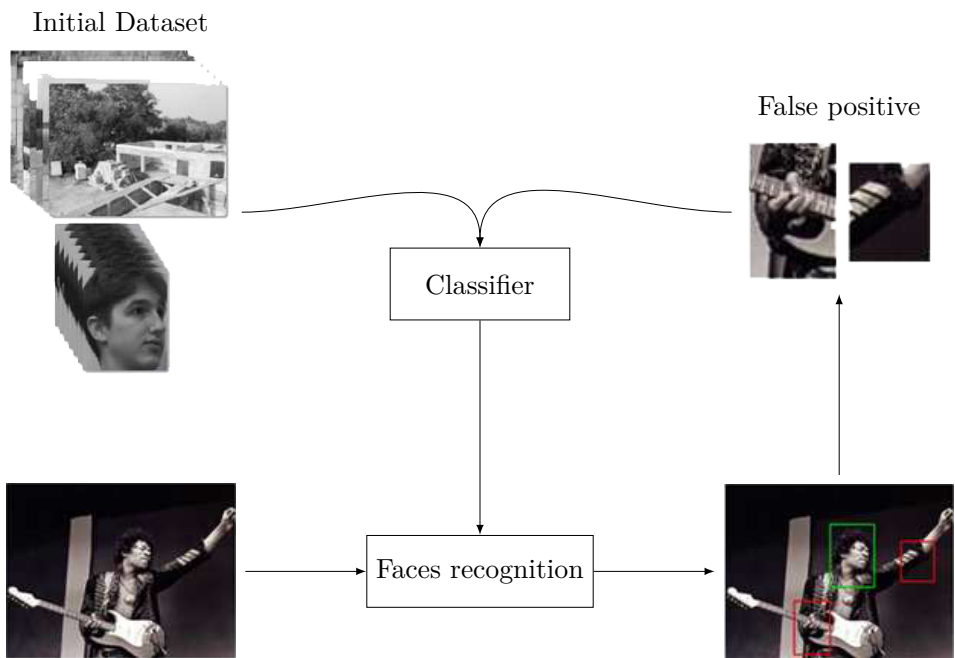
3.2 Example 2



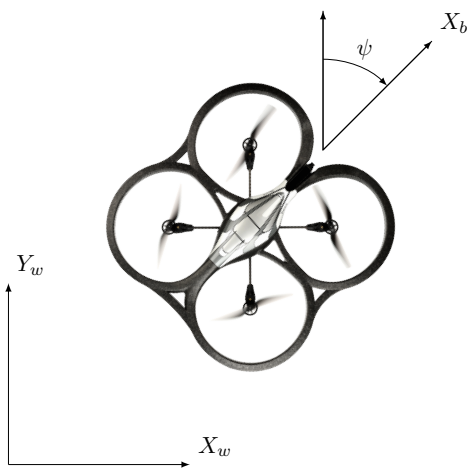
3.3 Example 3



3.4 Example 4



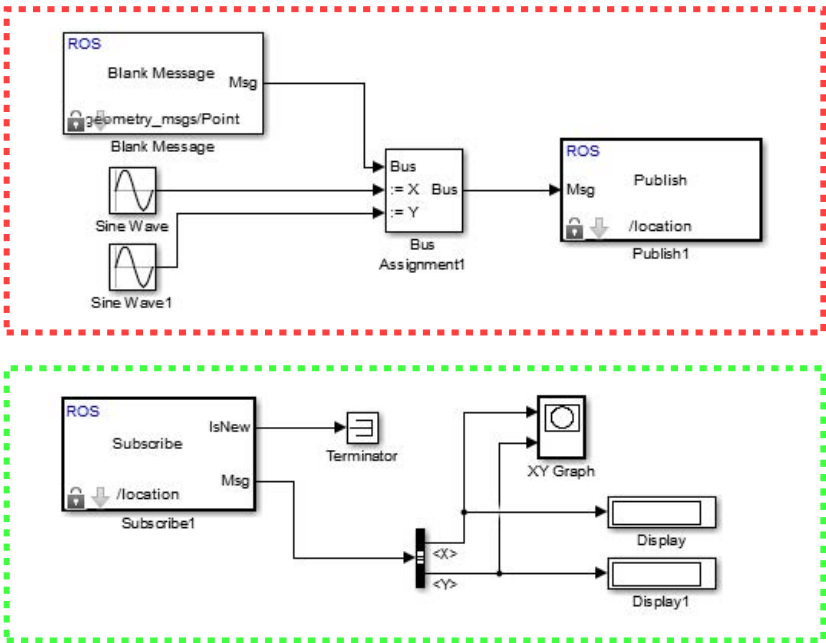
3.5 Example 5



3.6 Example 6

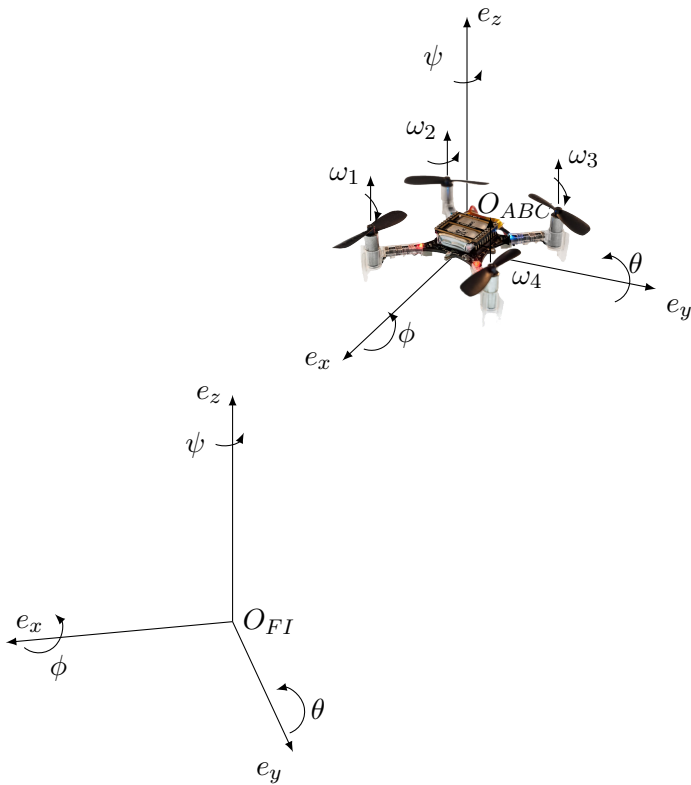


3.7 Example 7

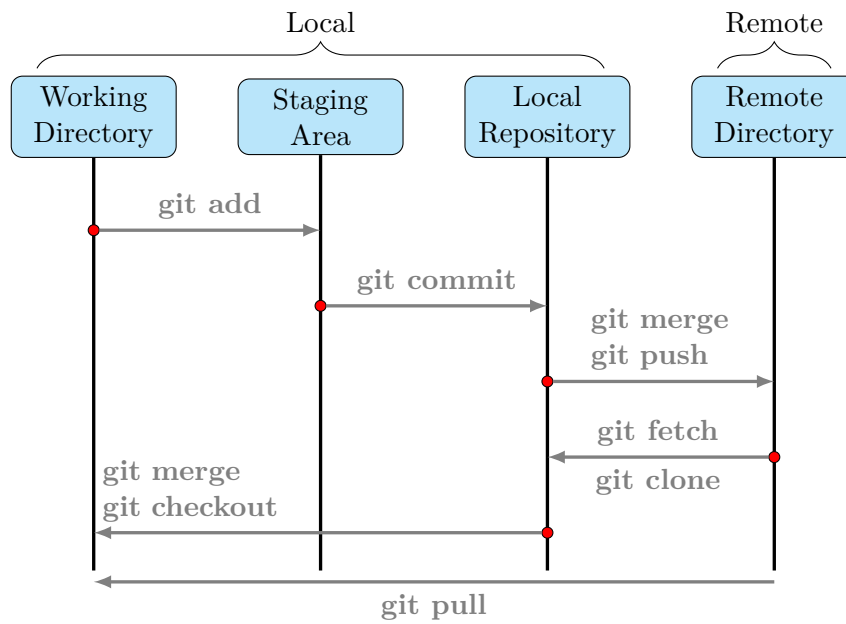




3.8 Example 8



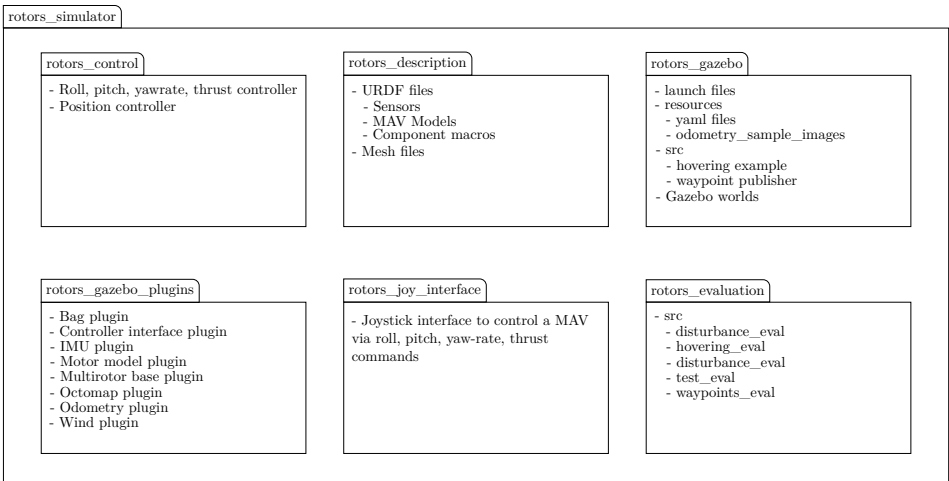
## 3.9 Example 9



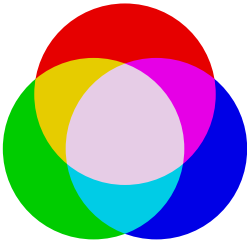
# Chapter 4

## Various

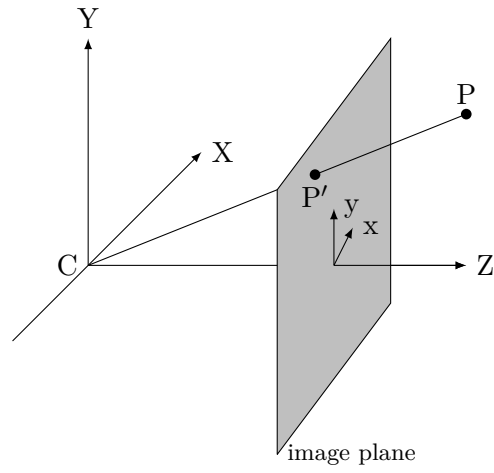
### 4.1 Example 1



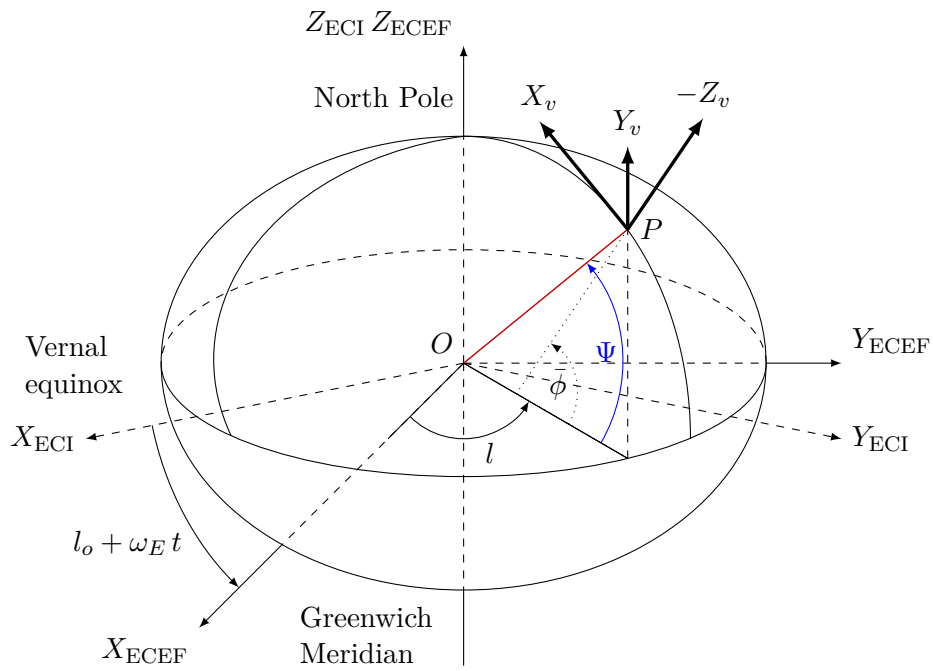
### 4.2 Example 2



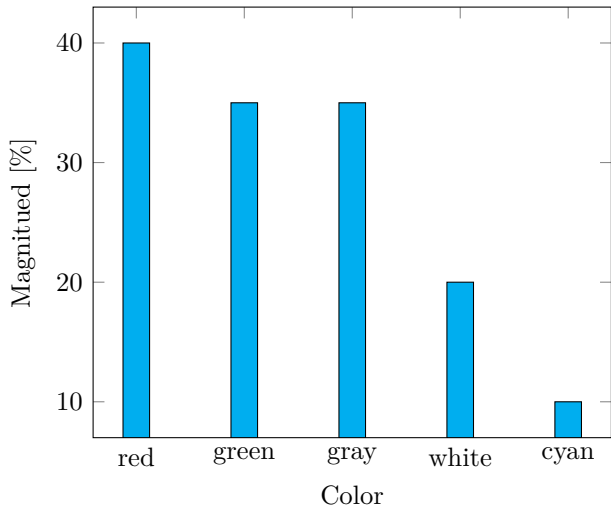
## 4.3 Example 3



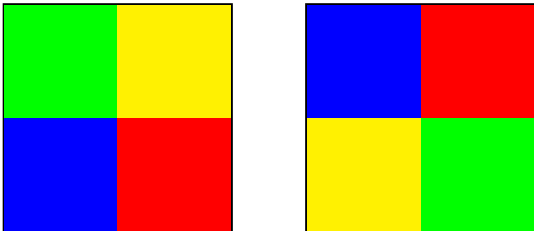
## 4.4 Example 4



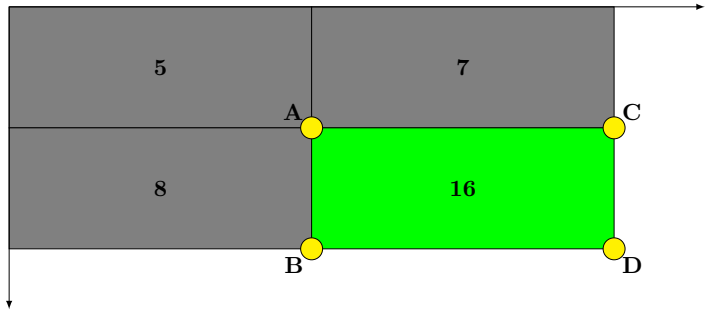
4.5 Example 5



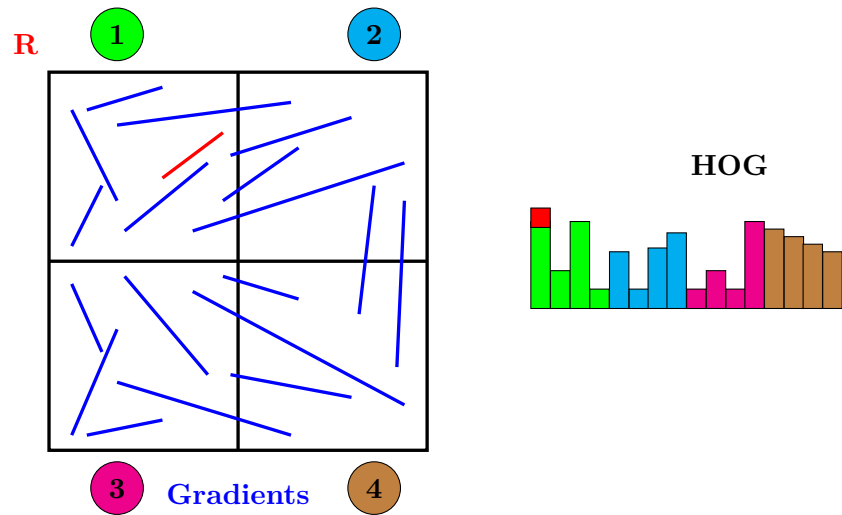
4.6 Example 6



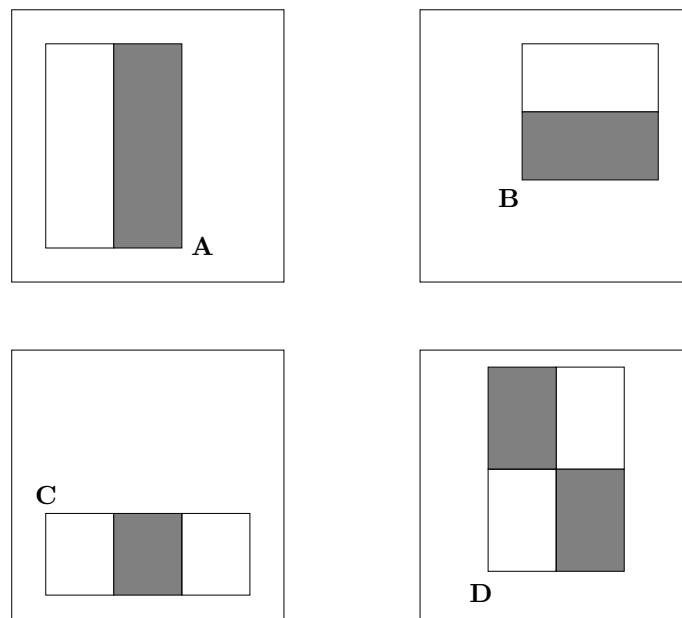
4.7 Example 7



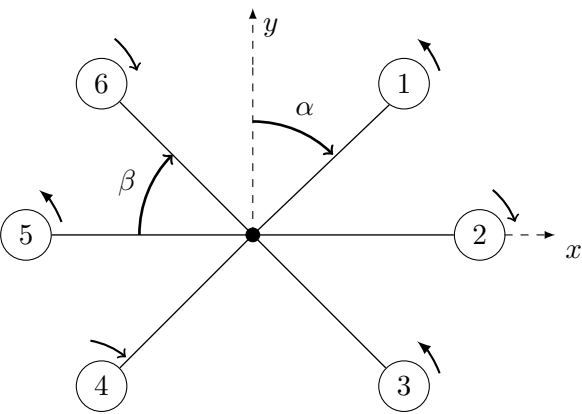
## 4.8 Example 8



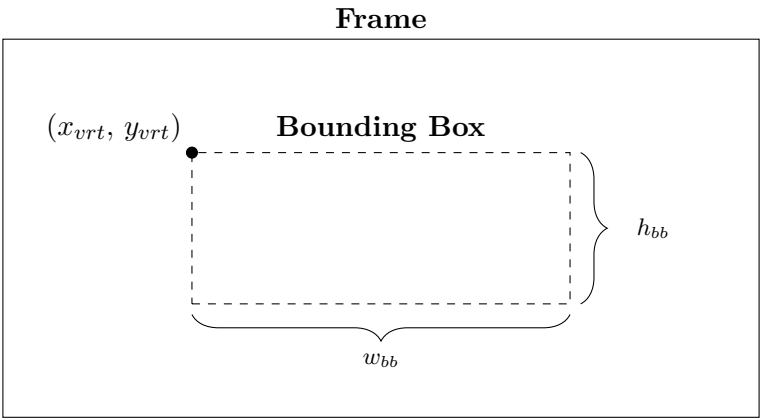
## 4.9 Example 9



4.10 Example 10



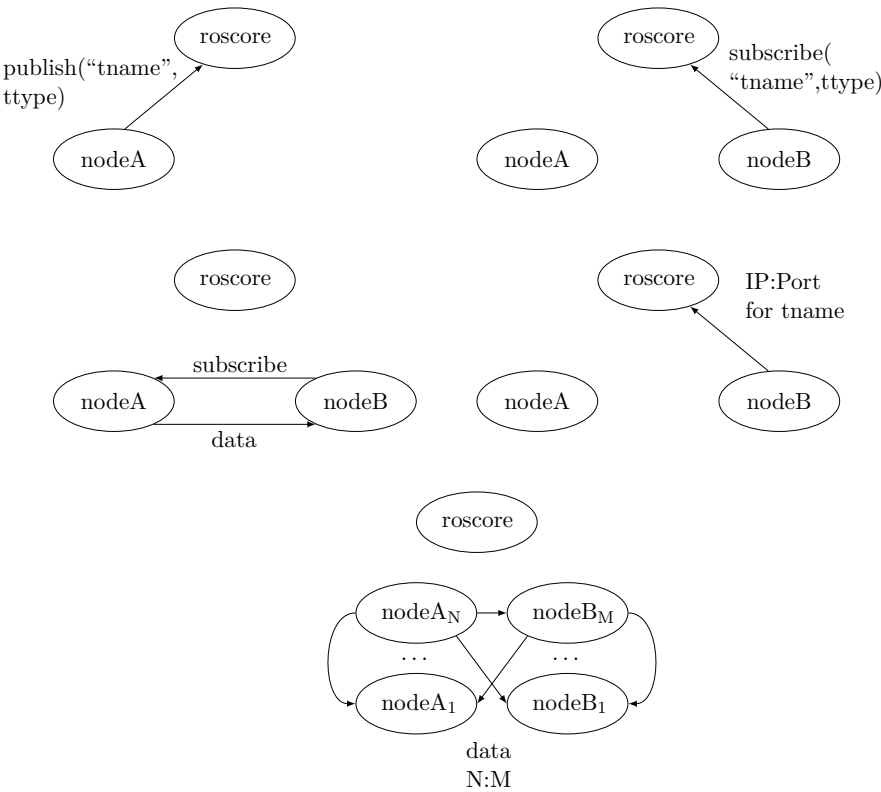
4.11 Example 11



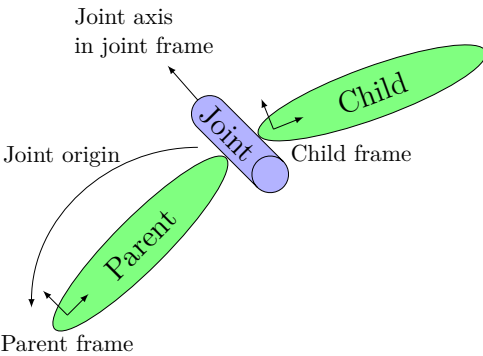
4.12 Example 12

0	1	2	3	4	5	6 to n+6	n+7	n+8
str	lgt	seq	cmp	sys	msg	dat	cks	cks

4.13 Example 13

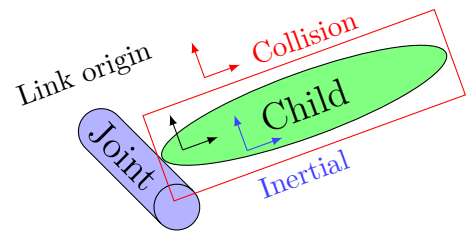


4.14 Example 14

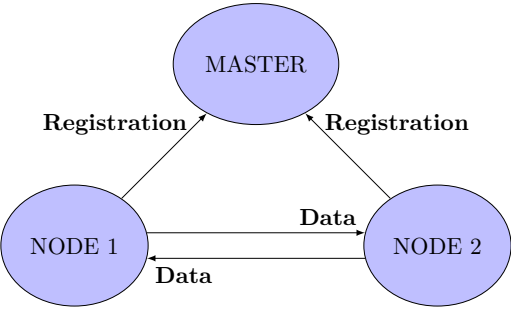




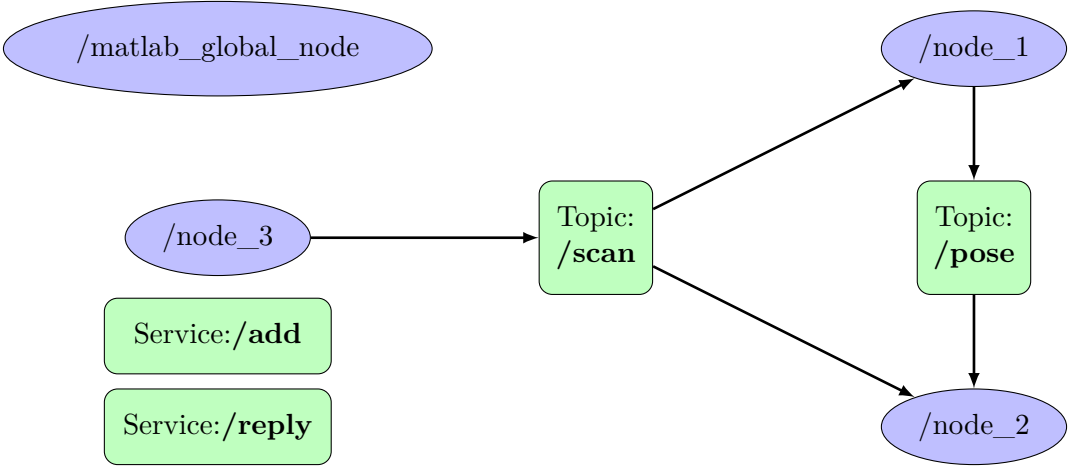
4.15 Example 15



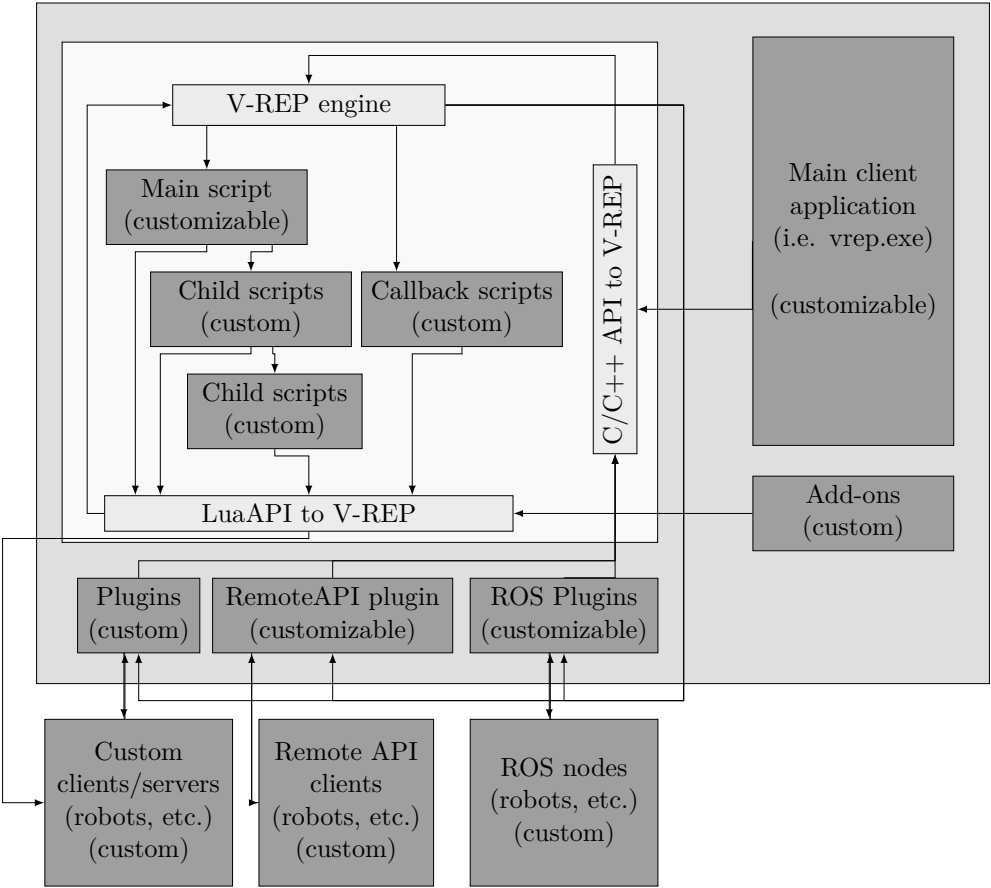
4.16 Example 16



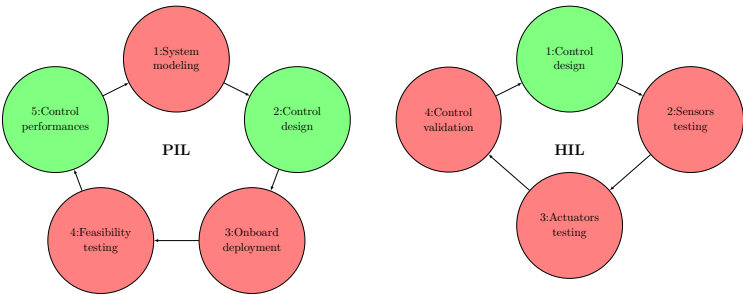
4.17 Example 17



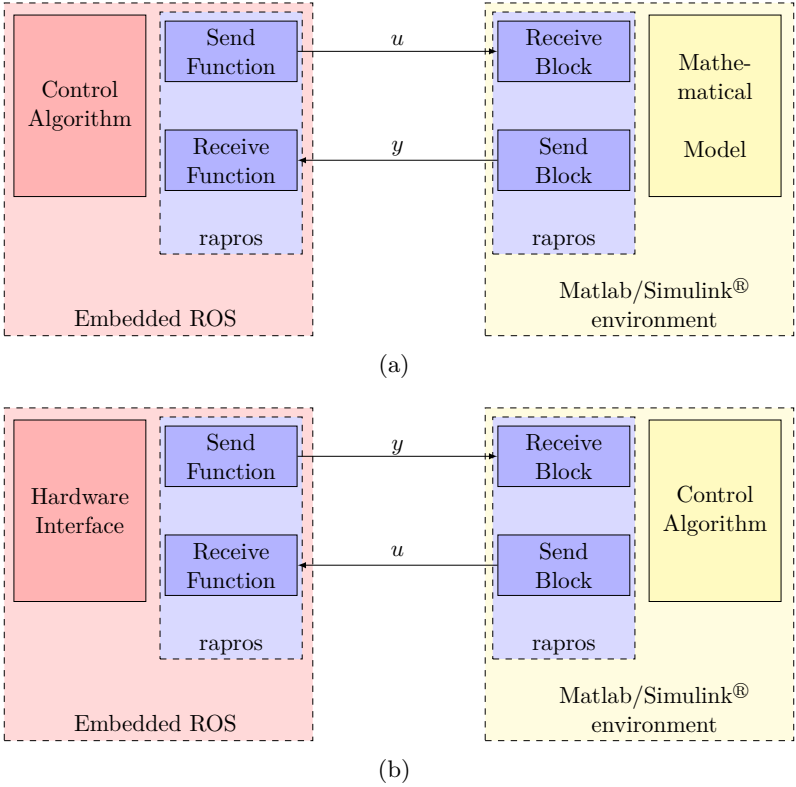
4.18 Example 18



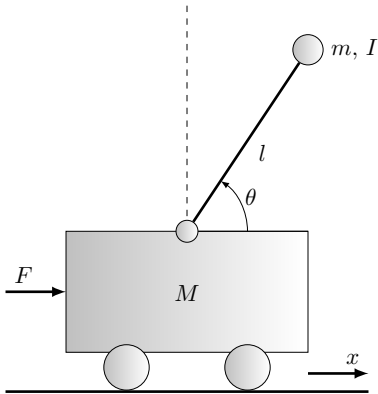
4.19 Example 19



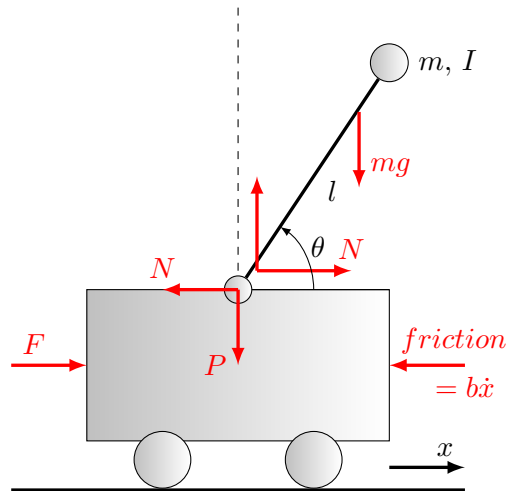
4.20 Example 20



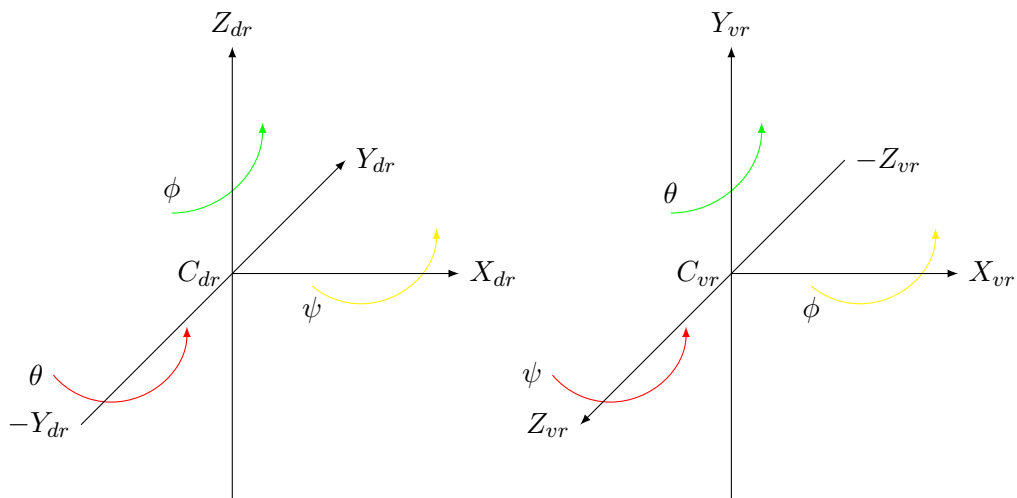
4.21 Example 21



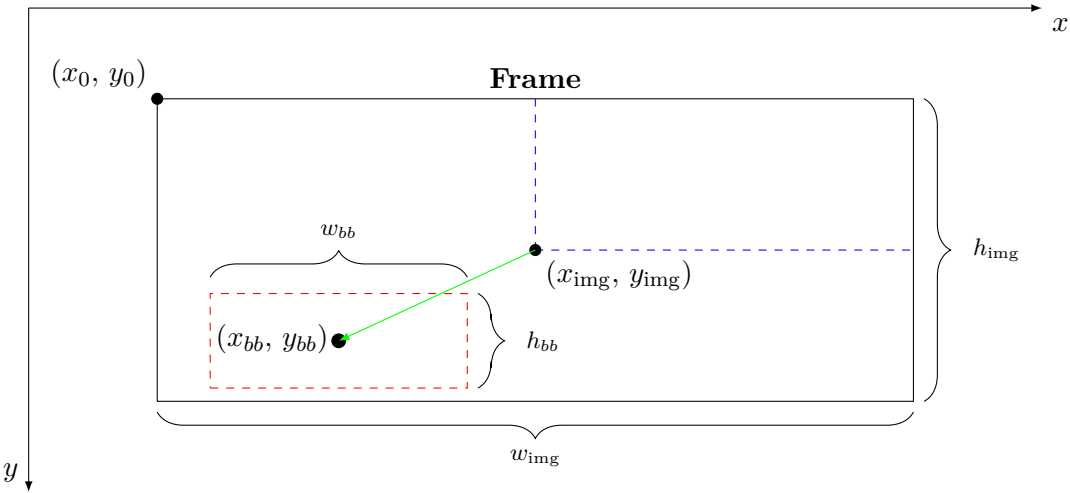
## 4.22 Example 22



## 4.23 Example 23



4.24 Example 24



4.25 Example 25

