Table of Contents

Background and Related Work 3
Introduction 3
Concepts 3
Products 3
Caption Plugin Usage Examples 3
Projects 6
Comparative Analysis 6
Summary 6

Background and Related Work

This chapter provides the reader with the relevant technical-scientific background as well as existing related products and research, also known as the state of the art, in the field(s) of the project.

Introduction

Provide here an overview of the contents (structure) of this chapter.

Concepts

Provide here all relevant concepts related to the topic(s) of the project

These are examples of citations to books **[1]** and **[2]**, a chapter on a smart companion **[3]**, articles on IoT **[4]**, blimps **[5]**, cloud computing **[6]**, gas emissions **[7]**, pedestrian crossing behaviour **[8]**, smart bicycles **[9]** and diaper moisture **[10]**, and to Web resources **[11]**, **[12]** and **[13]**.

Products

Search, select and describe related commercial solutions

Caption Plugin Usage Examples

Table 1 illustrates a boxed table with default column widths and Table 2 with specific column widths.

Table 1: Boxed table

Abbreviation	Description
EPS	European Project Semester
ISEP	Instituto Superior de Engenharia do Porto
USB	Universal Serial Bus

Table 2: Boxed table with specific column widths

Abbreviation	Description
EPS	European Project Semester
ISEP	Instituto Superior de Engenharia do Porto
USB	Universal Serial Bus

Table 3 shows the execution time results for each API. Table 4 lists the fruit bought at the grocery.

Table 3: Time response

API	Time (s)
EJML	26
JAMA	295
JBLAS	29

API	Time (s)
MTJ	18
WEKA	123

Table 4: Fruit Weight

Fruit	Weight (kg)
Pears	2.60
Apples	2.95
Oranges	1.90

Figure 1 displays a magnificent owl from Lapland.



Figure 1: Owl

Figure 2 illustrates the placement of two images side by side.

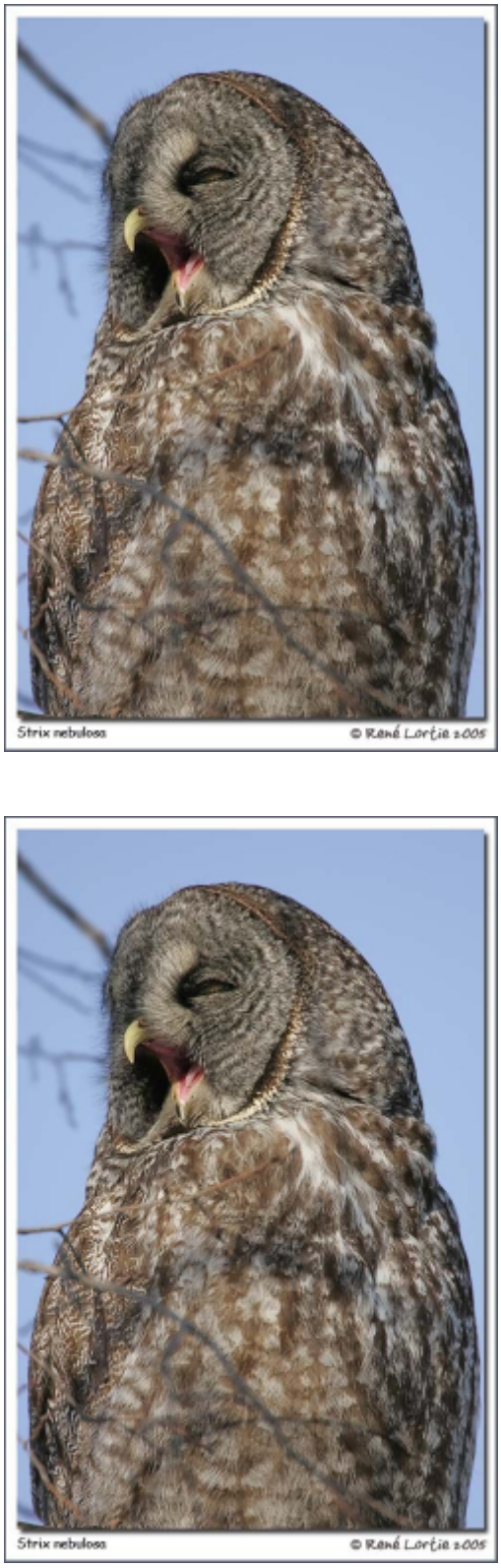

Figure 2: Images side by side

Figure 3 presents the European Project Semester (EPS) logo.



Figure 3: EPS logo

Projects

Search, select and describe related research projects

Comparative Analysis

Compare selected products and projects considering the requirements of your own solution

Summary

Provide here the conclusions of this chapter and make the bridge to the next chapter.

Based on this study of the state of the art, the team decided to adopt the following <specify here the architecture, technique(s), material(s), component(s)> because <specify here the technical/scientific reasons>.

---

[1] Rita Thapa, Hom Bahadur Rijal, Masanori Shukuya, Hikaru Imagawa, 2019. Study on the wintry thermal improvement of makeshift shelters built after Nepal earthquake 2015. *Energy and Buildings*, 199, pp.62 - 71, ISSN 0378-7788.
[2] Kazuko Obayashi, Shigeru Masuyama, 2020. Pilot and Feasibility Study on Elderly Support Services Using Communicative Robots and Monitoring Sensors Integrated With Cloud Robotics. *Clinical Therapeutics*, ISSN 0149-2918.
[3] Alexandre Soares dos Reis, Elien Gielen, Ko Wopereis, Marcel Pasternak, Vaido Sooäär, Tobias Schneider, Abel J. Duarte, Benedita Malheiro, Jorge Justo, Cristina Ribeiro, Manuel F. Silva, Paulo Ferreira, Pedro Guedes, 2020. Smart Companion Pillow – An EPS@ISEP 2019 Project. *Robot 2019: Fourth Iberian Robotics Conference*, Cham: Springer International Publishing, pp.465–476, ISBN 978-3-030-36150-1.
[4] Abdelbaset S. Hamza, Rahman Tashakkori, Bejamen Underwood, William O'Brien, Chris Campell, 2023. BeeLive: The IoT platform of Beemon monitoring and alerting system for beehives. *Smart Agricultural Technology*, 6, pp.100331, ISSN 2772-3755.
[5] Manuel Mahn, Markus Kemper, 2006. A BEHAVIOUR-BASED NAVIGATION SYSTEM FOR AN

AUTONOMOUS INDOOR BLIMP. *IFAC Proceedings Volumes*, 39, pp.837-842, ISSN 1474-6670.
[6] B. Sotomayor, Ruben S. Montero, I.M. Llorente, I. Foster, Sept 2009. Virtual Infrastructure Management in Private and Hybrid Clouds. *Internet Computing, IEEE*, 13, pp.14-22.
[7] Ranjith, V. Velmurugan, S. Thanikaikarasan, 2020. Prediction of Exhaust Gas Emission characteristics using Neem oil blended bio-diesel in diesel engine. *Materials Today: Proceedings*, 21, pp.870 - 875, ISSN 2214-7853.
[8] Anae Sobhani, Bilal Farooq, 2018. Impact of smartphone distraction on pedestrians crossing behaviour: An application of head-mounted immersive virtual reality. *Transportation Research Part F: Traffic Psychology and Behaviour*, 58, pp.228 - 241, ISSN 1369-8478.
[9] YeongKyun Lee, Jongpil Jeong, 2018. Design and Implementation of Monitoring System Architecture for Smart Bicycle Platform. *Procedia Computer Science*, 134, pp.464–469, ISSN 1877-0509.
[10] Tareq Khan, May 2018. A Smart Wearable Gadget for Noninvasive Detection and Notification of Diaper Moister. *2018 IEEE International Conference on Electro/Information Technology (EIT)*, pp.0240-0244, ISSN 2154-0373.
[11] Android Open Source Project, 2014. *Android Developers: Android 4.1 APIs.* [Accessed in April 2017].
[12] Cloud Expo, 2008. *Twenty-One Experts Define Cloud Computing.* [Accessed in April 2021].
[13] Gartner, 2021. *Gartner Magic Quadrant for Data Science and Machine Learning Platforms.* [Accessed in April 2021].

From:
https://www.mads4e.dee.isep.ipp.pt/ - **MADS4Engineering**

Permanent link:
https://www.mads4e.dee.isep.ipp.pt/doku.php?id=report:soa&rev=1771282869

Last update: **2026/07/07 18:15**