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1 Introduction

In this study, we model a multi-agent system to manage fire-related emergencies in Lloret de Mar, Girona. For this purpose, we have designed five specialized response teams using CrewAI[1]: **medical services**, **emergency services**, **firefighters**, **public communication**, and **police**.

The report is structured as follows: in **Section** 2, we analyze the environmental characteristics affecting this system. In **Section** 3, we discuss the distinct agent teams and the attributes of their individual members.

1.1 Related Work

The increasing capabilities of Large Language Models (LLMs) have sparked greater interest in this area, as these models demonstrate early signs of general intelligence [2] and adaptability to novel situations [4]. These advances have catalyzed various approaches and applications of autonomous agents, as illustrated by Wang et al. [6].

However, new challenges accompany these advancements, including the optimization of **task allocation** to leverage agents' unique skill sets, enhancing intermediate outcomes through agent discussions, managing complex **context** layers related to tasks, agents, and shared knowledge, and handling multiple **memory types** essential for effective multi-agent collaboration [3].

While not within the scope of our current study, future work might benefit from exploring related topics such as Berthon et al.'s work on modeling environmental uncertainty [1] and Morales et al.'s research on synthesizing norms for multi-agent systems (MAS) [5].

Finally, for the design of our system, we reference key principles in Chapter 2 of [7] and insights from Michael Wooldridge's video on agent properties[2].

[1] `https://www.crewai.com/`

[2] `https://www.youtube.com/watch?v=vID-_uIfAvg&feature=youtu.be`

2 Environment

This section describes the methodology used in the study, including data collection and analysis techniques.

3 Agents

prueba

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