AN AGENT-BASED PLATFORM FOR ONLINE DISPUTE RESOLUTION

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EXTENDED ABSTRACT

Due to new and emerging technologies the world is in change and, particularly in the last decade, this change has been vertiginous. This has, as one of the consequences, a whole new fashion of doing business. An old paradigm that was based on paper and in which concepts like nationality or location were of major importance is now being replaced by a new paradigm in which people from virtually anywhere in the world enter into electronic interactions, regardless their location or even their nationality.

The potential of these processes led to an impressive growth in online activities such as online contracting, which evidently also led to a growth in the disputes between the parties involved in these activities. The traditional courts that were formatted to a paper-based reality shaped after the industrial revolution are no longer suited to deal with both the amount of new disputes that are created every day and with the new characteristics of these disputes. The consequence of the first aspect is that people have to wait longer and longer to have access to justice, sometimes even giving up on the case, thus renouncing the access to a basic right. The consequence of the second aspect is that the legal system is not yet ready to deal with disputes that are generated online.

A trend that has come to light recently is that if the disputes are generated online, they should also be solved online. This ported already traditional Alternative Dispute Resolution (ADR) methods such as negotiation, mediation or arbitration into the virtual world, giving birth to the so-called Online Dispute Resolution (ODR) mechanisms. This new model for dispute resolution aims at being an online alternative to litigation. It can however expand the possibilities of common ADR systems by making use of state-of-the-art technologies.

These technologies include but are not limited to expert systems, multi-agent systems, case-based reasoning, negotiation support systems or decision support systems. In this particular case, the work is being focused on two specific technologies: multi-agent systems and case-based reasoning. Multi-agent systems are a relatively new paradigm for the development of distributed systems that allow developing large applications defined in terms of the interaction of small and simple bundles or agents. The resulting systems are characterized by being scalable, modular, extensible and expansible, lightweight and decentralized.

Case-based reasoning is a technique from the Artificial Intelligence umbrella that allows searching for past experiences to find solutions for new problems. In this paradigm there is a database of cases, in which each case represents a past experience. Each case therefore contains a description of the initial state of the world, a description of the problem faced, the solution adopted and the result, i.e., the final state of the world. When the system faces a new problem, it will look at the case base and search for similar cases. If it finds similar cases, it will apply the solution of the past case to the current problem in an attempt to solve it. It will then analyse the result of the application and learn with its success or failure, for future iterations.

Both multi-agent systems and case-based reasoning have already been used by researchers in the legal domain, and specifically, in the dispute resolution domain. Nevertheless, this work is addressing the research from a new point of view. Traditionally, these techniques have been used to develop systems that are aimed at helping parties and respective lawyers win cases in court. Nevertheless, given the current known problems of the access to justice (slowness, price, lack of privacy, win-lose scenario), the proposed ODR platform approaches the problem from a different perspective. It provides relevant information for the parties in an attempt to solve the dispute out of the courts.

This information includes important concepts such as the Best and Worst Alternative to a Negotiated Agreement (respectively BATNA and WATNA), the Zone of Potential Agreement (ZOPA) and the Most Likely Alternative to a Negotiated Agreement (MLATNA). BATNA and WATNA represent, respectively, the best and the worst outcome in a traditional litigation scenario, i.e., if these two parties

are to go into a court, what are each one's best and worst possible outcomes. These two values are of highly importance in order for the parties to be aware of the possible consequences of litigation in court. Moreover, these values are also recognized by literature as being important for preventing parties from engaging in unrealistic or overoptimistic behaviours. Following the same line of thought, the MLATNA indicates the most probable outcome if the case is to be settled in court. Using this information, it is possible to establish the ZOPA, the final compilation of information that will let parties have a clear idea of the possibilities, the risks, the costs and the gains.

The key idea in this approach is to provide all the relevant information to the parties, let them be aware of the pros and the cons, and then let them engage in alternative processes for solving the dispute. Namely, the proposed platform includes a mediation tool that relies on the information previously mentioned and on information provided by the CBR module to guide and assist parties to reach a mutually favourable outcome. Using this tool, parties can work out a solution starting from the solution proposed by the system.

This approach, that merges case-based reasoning and electronic mediation, is expected to increase the satisfaction of the parties as it proposes a solution that is dynamic and can be changed by parties in opposition to traditional approaches in which a solution is proposed by the system without an active participation of the parties. Following this line of thought, a decrease in the number of cases that actually have to be settled in court is expected, resulting in advantages for both the public justice system and the disputant parties.

SELECTED PUBLICATIONS

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