Projects for ETSIST Incoming Students - PROJECT PROPOSAL

Academic year 2023 / 2024

Project description		
Project name: Digitalization of Agricultural Welfare Certifications with blockchain (DAWN)		
Academic year: 2023/2024	Semester: X Fall O Spring	
Starting date ¹ : 04/09/2023	Ending date ² : 04/12/2023	
UPM Centre: ETSIST	Hours per week: 10	
Total hours: 150	Credits: 6	
Supervisor data:		
Name: Jesús Rodríguez Molina		
Department: Department of Telematic Engineering and Electronics (DTE)		
E-mail: jesus.rodriguezm@upm.es		Phone: +34 696 74 64 81
Project contents and requisite skills		
Certifications of agricultural welfare are of major importance in the primary sector industry due to several reasons: a) consumers demand in an increasing fashion that crops are of high quality and have authenticity features and b) it is a way to prove that the food resulting from these crops consumed has an added value that end customers are willing to pay. However, many of the procedures used to provide such certifications cannot truly prove that crops are grown the right way and with the right conditions at every moment because of the low digitalization and available traceability of such procedures. Most of the information is gathered manually during specific		

days when human reviewers are sent to the farms and collect the data during a limited amount of time. DAWN is a project where digitalization of such procedures is put forward to increase data collection, transparency, efficiency, and traceability of the care level devoted to farm animals. To do so, there are several tools that will be used for this purpose: a) sensors to measure parameters from crops, b) devices that will collect multimedia information even on a real-time basis and c) a blockchain deployment that will be used to store the information in a secure manner so that it will not be tampered with by any spurious third party. Deployments will be done as part of an actual farm in order to test the feasibility of the solution proposed, as well as the information that can be obtained from the blockchain once it has been scanned with a Quick Response (QR) as a tool.

¹ Note that the starting date cannot be before the beginning of the lectures in the corresponding semester

² Note that the ending date cannot be after the last exam in the corresponding semester

Expected learning outcomes

The following learning outcomes are expected to be learnt:

- 1. Understanding the fundamentals of blockchain.
- 2. Getting an accurate idea on how to use it for food traceability.
- 3. Programming skills with regards to blockchain and QR codes.

Rules for students

a) To join the project, to follow the rules and schedule agreed with the supervisor, and to duly justify any possible absence.

b) To carry out the activities specified in the project schedule and to keep the necessary contact with the supervisor.

c) To inform to the Internship Coordinator at ETSIST, or to the Mobility Office, of any event or complaint that may arise in the development of the project.

d) To send to the Internship Coordinator at ETSIST an interim report (Annex II), a final report of the work carried out (Annex III) and the satisfaction questionnaire of the internships, according to the forms and the deadlines set in the annexes of this regulation.

e) To maintain the confidentiality of the internal information of ETSIST, Department or Center to which they have got access, as well as to not exploit the work carried out in the project without express authorization.