UNIVERSITY OF LA VERNE

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SENIOR PROJECT REPORT

**J2 INNOVATIONS’ AUTOMATIC RFID EMPLOYEE CLOCKING SYSTEM**

A SENIOR PROJECT SUBMITTED TO:

THE FACULTY OF

COMPUTER SCIENCE AND COMPUTER ENGINEERING

IN CANDIDANCY FOR THE DEGREE OF

BACHELORS OF SCIENCE

SOFTWARE / ENGINEERING

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**Table of Contents**

[**Abstract** 2](#_Toc513207144)

[**Introduction** 2](#_Toc513207145)

[**Method** 2](#_Toc513207146)

[**Results** 2](#_Toc513207147)

[**Discussion** 3](#_Toc513207148)

[**References** 3](#_Toc513207149)

[**Appendix** 3](#_Toc513207150)

# **Abstract**

The purpose of this project is to design and implement an RFID based employee time tracking system for J2 Innovations, a building automation software company. The following hardware technologies were used: IOT enabled ESP32 microcontroller, RFID scanner module, 3D printing, WiFi AP device configuration. In addition, a variety of software was used: Arduino IDE, NodeJS framework, Ractive library, AM Charts library, MySQL database. The user experience was greatly improved and user complaints were reduced to nearly none. Possible future expansions include handling different time zones for international employees, generating reports and charts for management, and scheduling days off and vacations through the UI.

# **Introduction**

Keeping accurate records of employee work times is very important. Not only does it ensure that the employees get paid for what they worked, but it also makes sure that conflicts arising from accidental overpaying or underpaying do not occur. Accurate time records also allow for the possibility of measuring work performance when coupled with descriptions of what was done during those hours. Using this information to modify the working environment and schedules can lead to higher productivity in a company.

* What is the point if the study?
* How does the proposed design relate to the problem?
* What are the implications of the study, and how does the study relate to previous work in the area?
* What are current pro[positions tested, and how were they derived?

A good introduction answer these questions in a paragraph or two and, by summarizing the relevant arguments and the data, gives the reader a firm sense of what was done and why.

Develop the background:

Assume that the reader has knowledge in the field for which you are writing and does not require a complete digest. A scholarly review of earlier work provides an appropriate history and recognizes the priority of the work of others. If you summarize earlier works, avoid nonessential details; instead, emphasize pertinent findings, relevant methodological issues, and major conclusion. Refer readers to general surveys or reviews of the topic if they are available. Demonstrate the logical continuity between previous and present work.

State the purpose and rationale:

After you have introduced the problem and developed the background material, you are in a position to tell what you did. Make this statement in the closing paragraph of the introduction.

# **Method**

Insert method here

# **Results**

Insert results here

# **Discussion**

Insert discussion here

# **References**

Insert references here

# **Appendix**

Insert appendix here