

# EVALUATING THE EFFECTIVENESS OF GAMIFIED FEEDBACK SYSTEMS ON DRIVER BEHAVIOUR AND SAFETY USING A SIMULATED IN-VEHICLE ENVIRONMENT

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## Overview

THIS PROJECT DEVELOPS A REAL-TIME GAMIFIED DRIVING FEEDBACK SYSTEM USING A UNITY SIMULATOR, ESP32 MICROCONTROLLER, AND TFT DISPLAY. LIVE TELEMETRY DATA SUCH AS SPEED AND BRAKING IS PROCESSED THROUGH A C++ SCORING ALGORITHM TO DELIVER IMMEDIATE GAMIFIED VISUAL FEEDBACK AIMED AT IMPROVING DRIVER AWARENESS AND SAFETY.

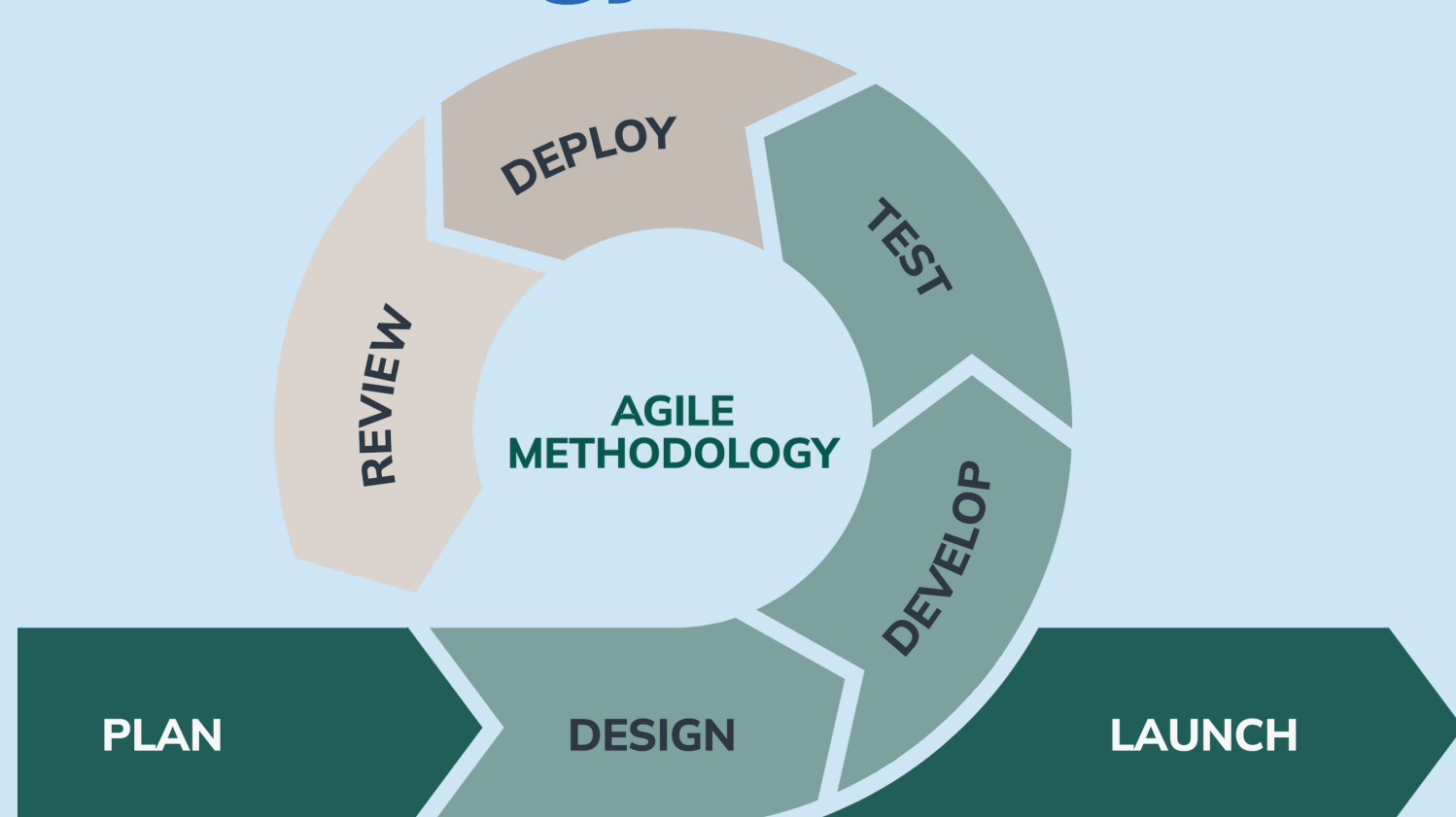
## Problem Statement

ADDRESS THE LACK OF REAL-TIME AND ENGAGING DRIVER FEEDBACK. EXISTING SYSTEMS OFTEN RELY ON DELAYED ANALYSIS OR SMARTPHONE-BASED SENSORS, LIMITING RESPONSIVENESS AND ACCURACY. THIS REDUCES DRIVER AWARENESS AND LIMITS THE EFFECTIVENESS OF BEHAVIOURAL IMPROVEMENT SYSTEMS.

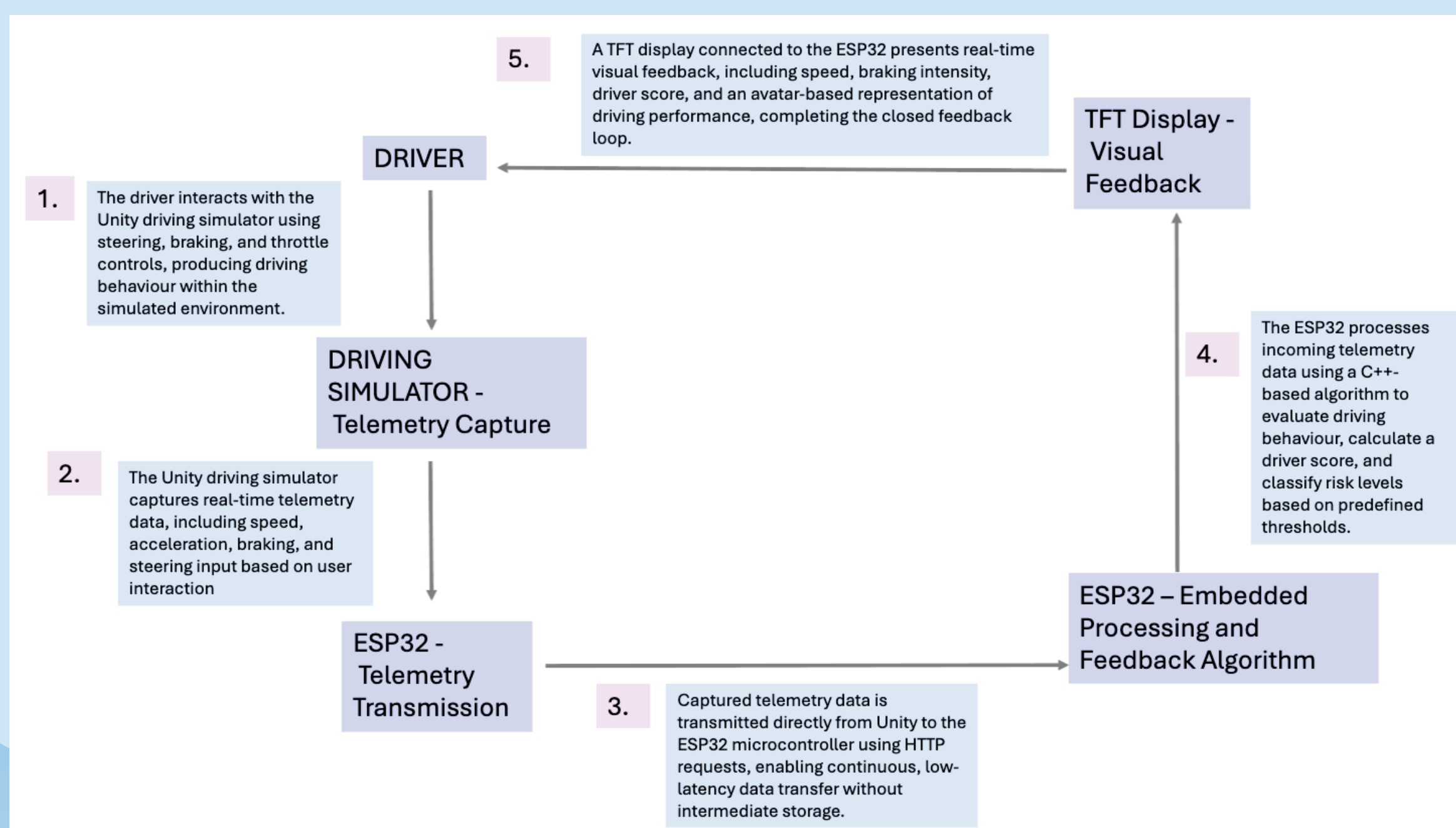
## Proposed Solution

A FULLY DEVELOPED REAL-TIME GAMIFIED DRIVING FEEDBACK SYSTEM

## Methodology



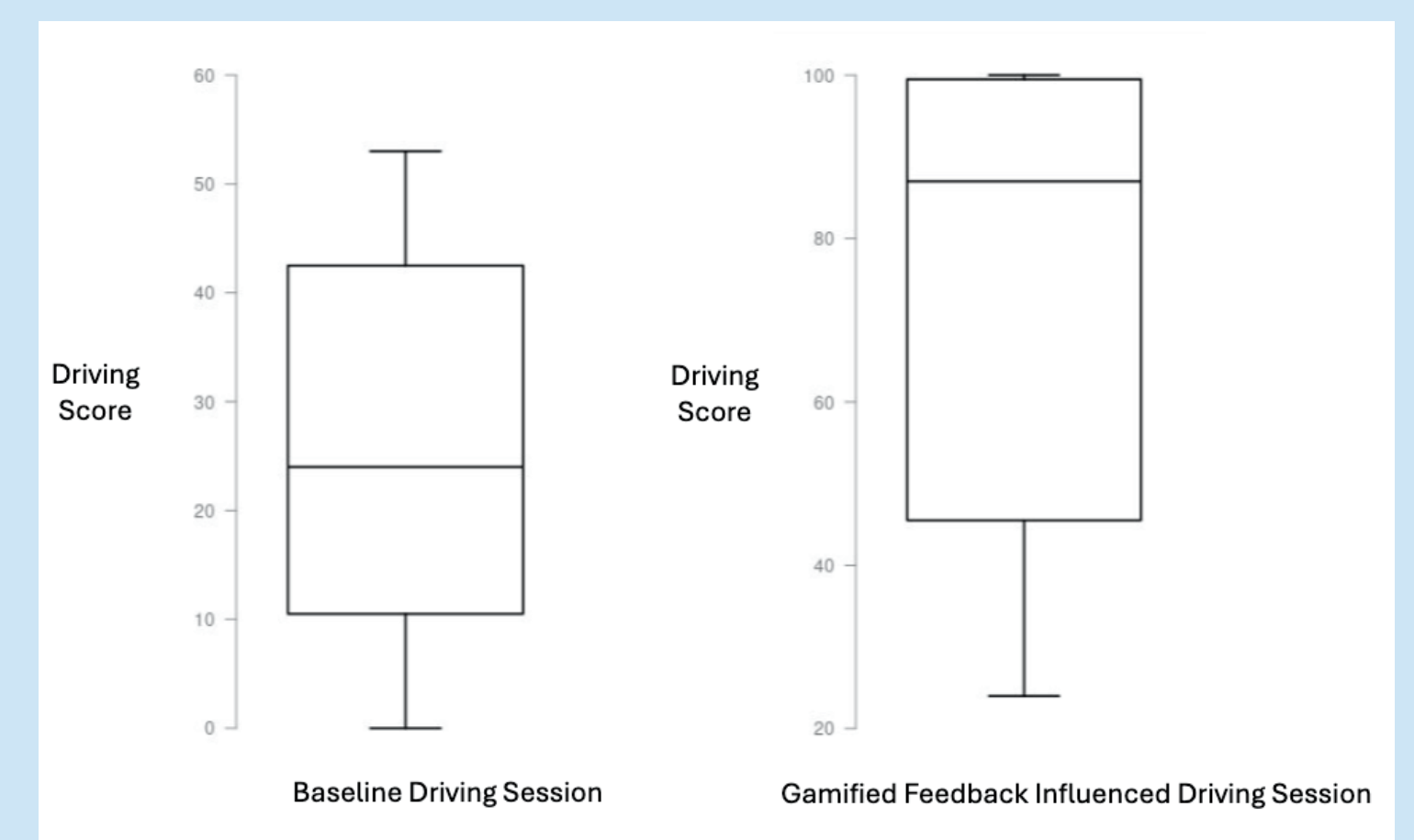
## System Architecture



## Developed Solution



## Evaluation



## Conclusion

THE PROJECT AIMED TO DEVELOP A REAL-TIME GAMIFIED DRIVING FEEDBACK SYSTEM TO ENCOURAGE SAFER DRIVING BEHAVIOUR WITHIN A SIMULATED ENVIRONMENT. USING UNITY, AN ESP32 MICROCONTROLLER, AND A TFT DISPLAY, THE SYSTEM PROCESSES LIVE TELEMETRY DATA TO DELIVER IMMEDIATE VISUAL FEEDBACK THROUGH SCORES, COLOUR INDICATORS, AND AVATAR-BASED RESPONSES.