SMART PARKING SYSTEM

INTELLIGENT TECHNOLOGIES – GROUP 37

EEE 412 – Internet of Things

CONTENTS

IDENTIFIED PROBLEM

1. TOO MUCH MANUAL LABOUR INVOLVED
2. HAVE TO MANUALLY FIND A VACANT PARKING SLOT
3. PAYMENTS HAVE TO BE DONE TO AN ATTENDANT
4. NOT ENOUGH SAFETY WHEN IT COMES TO HANDING THE VEHICLES
5. CAN'T BOOK A PARKING SPACE BEFOREHAND

"How to improve the effectiveness of existing parking systems?"

PROPOSED SOLUTION

METROPARKING

A fully automated, online, smart parking system based on IoT and cloud technologies, capable of assisting the client

metroparking

OBJECTIVES

To build an automated online parking system

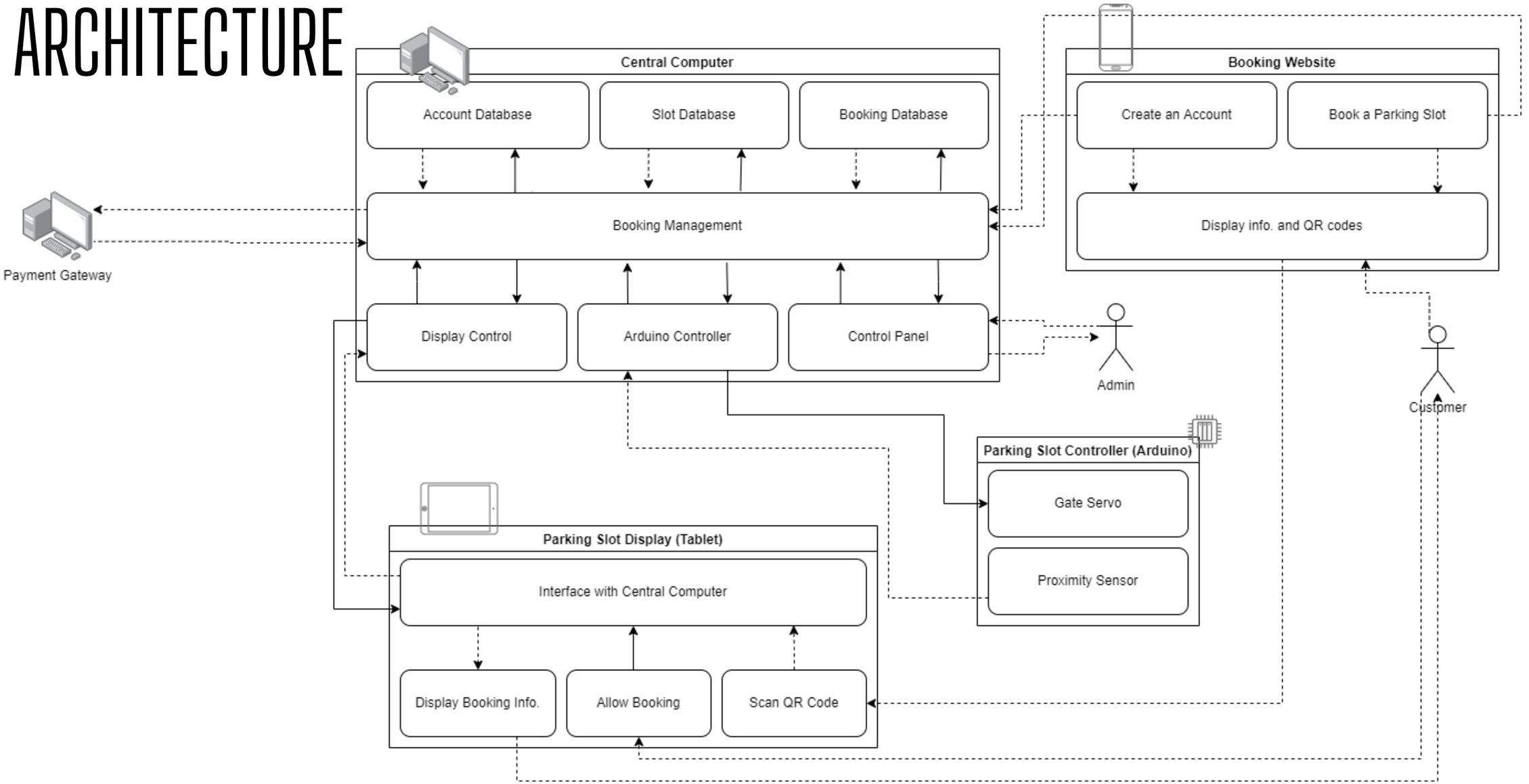
To allow users to conveniently book reservations online beforehand

To allow assisted parking for a safe and convenient experience

TECHNOLOGIES USED

- Internet of Things (IoT)
- Cloud Storage
- Smart Autonomous System

ARCHITECTURE



COMPONENTS

Central Computer

Server PC
Admin Panel - C#, VIsual Studio 2019
Central Database - MySQL
Client and Kiosk Web Hosting - Apache
Router (Create a local network for testing)

Parking Space Kiosk

Tablet PC - Android
Connected to the network

Client Device

Smart Phone - Any device
Client logs into their account on our service

Parking slot controller

Arduino Mega
Servo - Control Gate
SONAR - For Safe Parking

FEATURES

Central Computer

Controls the complete ecosystem
Hosts the web server for the client side
Hosts the database for the system
Allows full control for the admins
Communicates with the sensing equipment on each slot
Handle the kiosk displays

Parking Space Kiosk

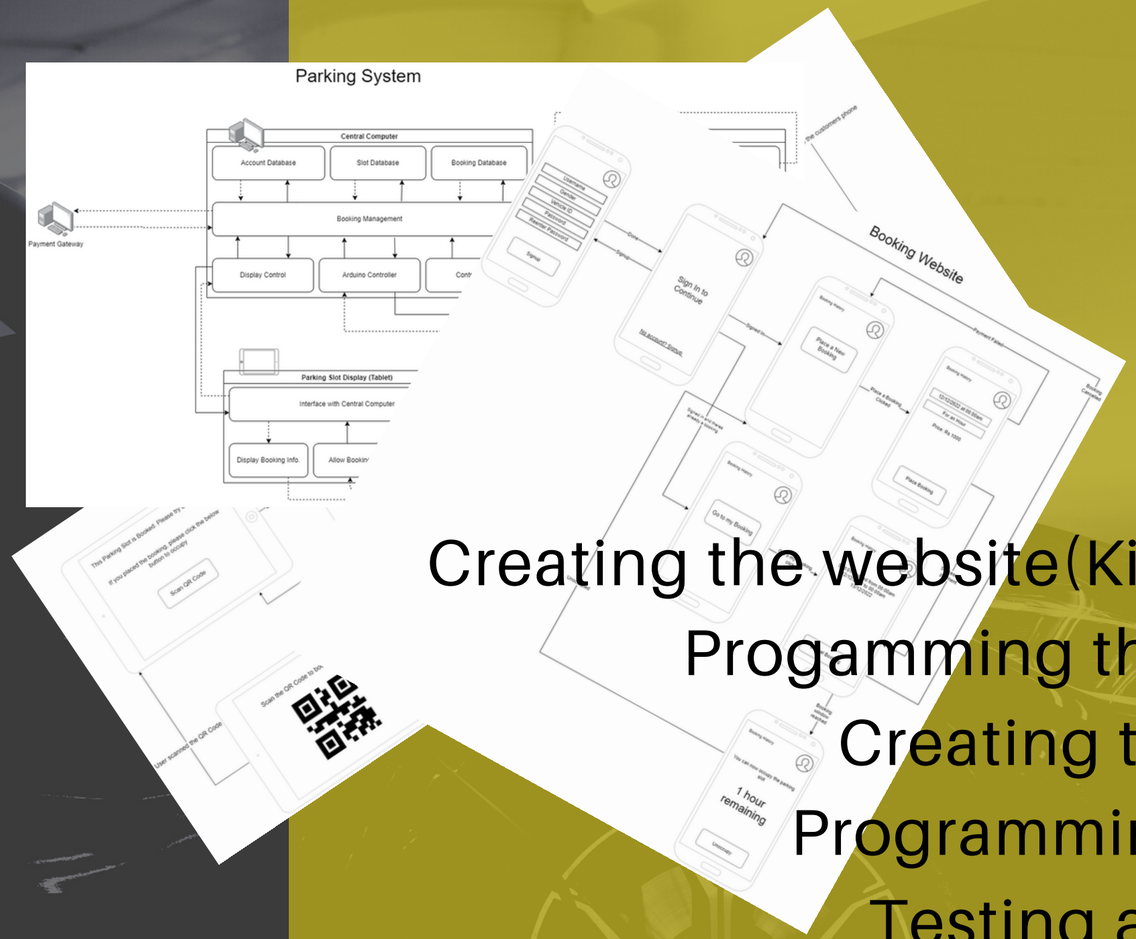
Allow the users to check their reservations
Scan the QR code sent earlier to enter the parking slot

Client Device

Allows the users to register with our service and reserve parking slots
The remaining time for the reserved parking slot can also be checked
Developed from HTML, CSS, JS and PHP

Parking slot controller

Handles the opening and closing of slot gates
Allows the users to safely park their car and leave the slots



WORK ALLOCATION

Creating the website(Kiosk and client) - Tharindu, Rashmi

Progamming the admin panel - Chathuni

Creating the databse - Imasha

Programming the arduino - Akash

Testing and debugging - All

Creating the prototype - Akash, Tharindu, Chathuni, Imasha

Documentation - Chathuni, Imasha, Rashmi

COVERAGE

95% is completed

Have to fix some operational bugs.
Not implemented on actual parking location.
The actual payment gateway is not implemented.
The system is implemented for only a single slot.

DRAWBACKS

Users cannot change the booking

Users cannot book multiple parking slots at the same time

Doesn't prevent a user from exceeding their allocated time period

Doesn't allow users to edit their profiles

FURTHER IMPROVEMENTS

A mobile Application
Implementing the system for multiple slots
Number plate scanning
Allow more flexibility in user accounts

DEMONSTRATION


THANK YOU
The Intelligent Tech Team
Asanka Sovis - 852
Chathuni Patikirige - 867
Rashmi Abeywickrama - 939
Imasha Silva - 930
Tharindu Madushan - 1037