AUTOMOTIVE CLIMATE CONTROL APPLICATION

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09.07.2025

Mobile Applications and Interaction Design in Vehicle

OVERVIEW OF THE APP

It is a comprehensive **Climate Control App** for Android that simulates an advanced car climate system. The app features a main interface with temperature and fan speed controls, zone selection (Driver/Passenger/Rear/All), and smart switches for AC, auto mode, defrost, and eco mode. It includes preset buttons for quick Cool/Warm configurations and displays real-time power usage levels. The settings activity allows users to manage profiles (Eco, Comfort, Performance, Custom), configure scheduling for automatic climate activation, and access system diagnostics. The app also supports theme customization, temperature unit switching, and various user preferences with persistent storage using SharedPreferences.

MAIN PARTS

MainActivity

This MainActivity() creates a car climate control interface with temperature and fan speed sliders, zone selection buttons (driver/passenger/rear), and various switches for AC, auto mode, defrost, and eco mode. It provides preset climate settings, real-time status updates, power usage monitoring, and automatic fan speed adjustment based on temperature settings.

Test Classes

Contains some basic tests for the application functionality and instruments which are used to validate the working.

SettingsActivity

This SettingsActivity() provides a comprehensive settings interface for the climate control app, allowing users to manage profiles (Default, Eco, Comfort, Performance, Custom), configure system preferences (temperature units, themes, auto-start), and set up scheduled climate activation. It also includes system diagnostics, maintenance reminders, energy-saving options, and data export functionality with persistent storage using SharedPreferences.

./res/values folder

This file contains different xml files to store values of the colors, styles, themes and strings used throughout the application

TECHNOLOGIES USED

Android Studio

Automotive class imports in Java

Automotive landscape emulator

Gradle build setup

APPLICATION FEATURES

Different climate control modes and zone controls

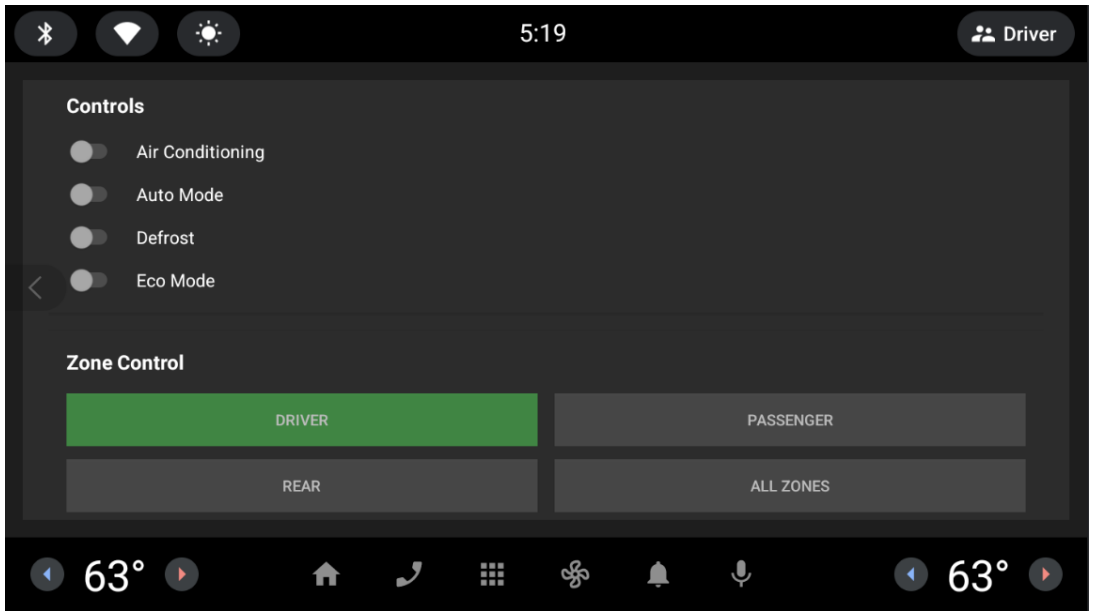
Adjustment of the temperature and the fan speed

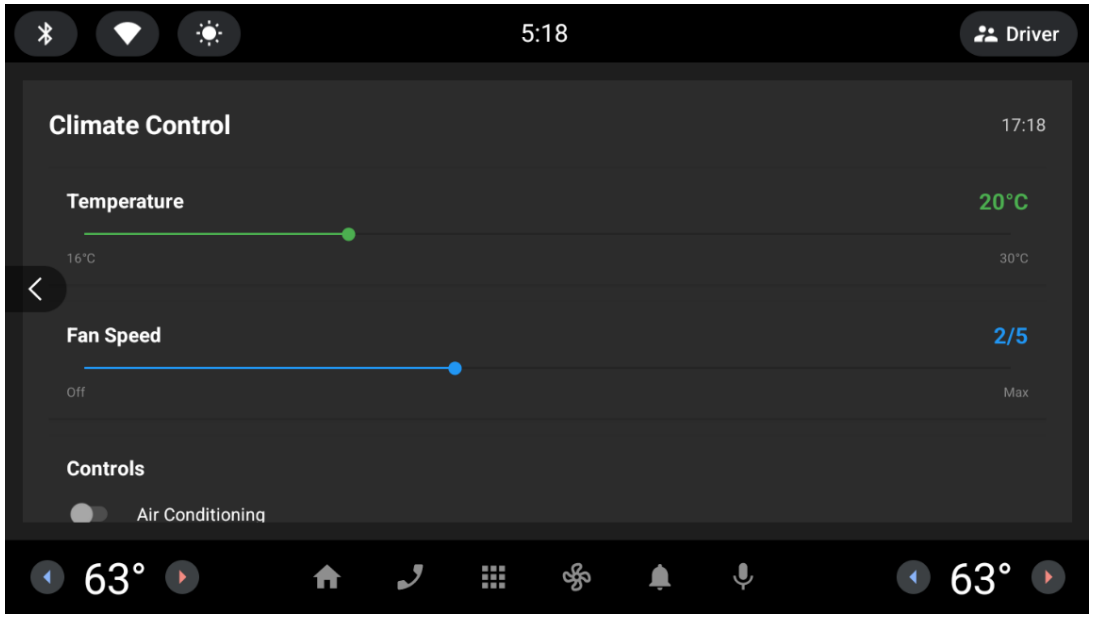
A detailed system status window

Power usage indication

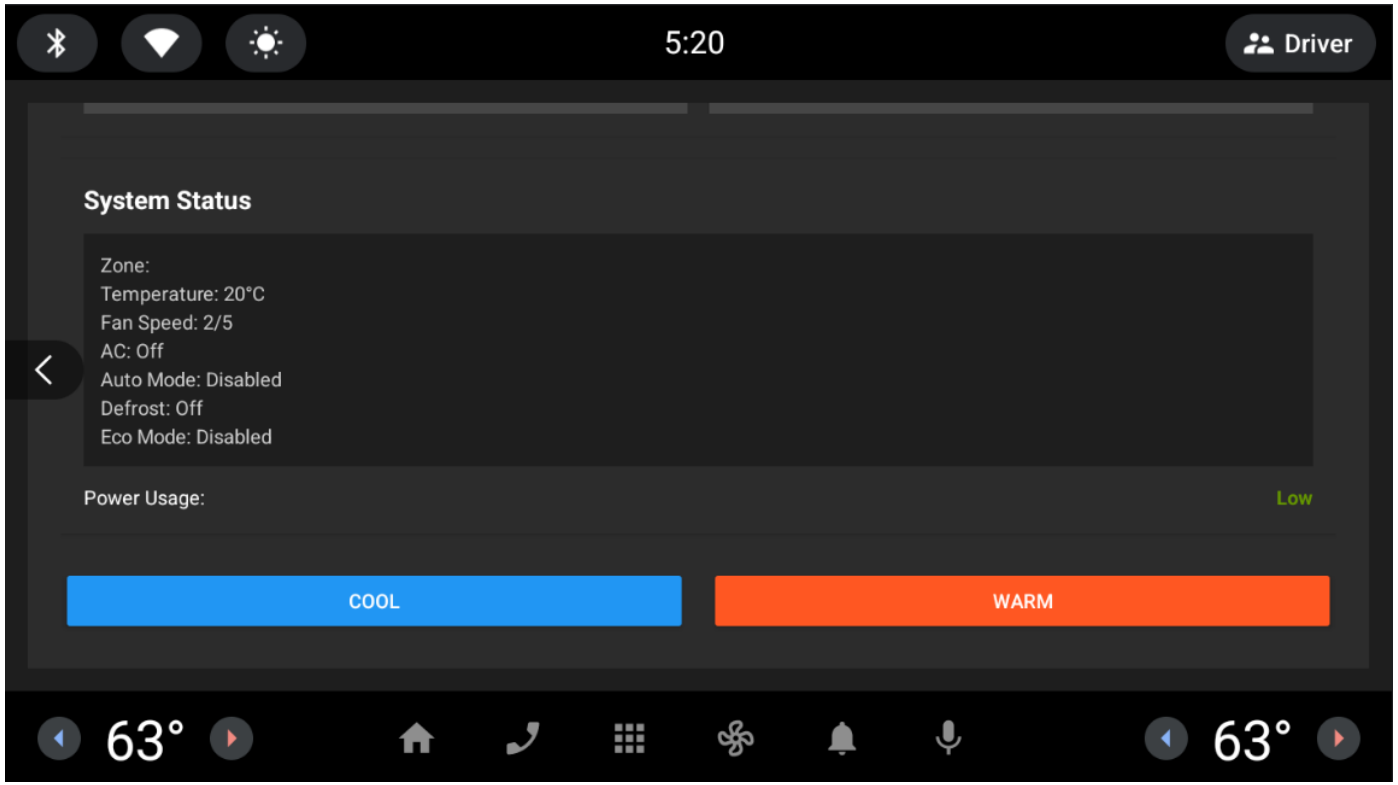
Ability to set temperature and fan speeds to fixed values using "Cool" and "Warm" buttons

APP LAYOUT


5:19
Driver
Controls
Air Conditioning
Auto Mode
Defrost
Eco Mode
Zone Control
DRIVER
PASSENGER
REAR
ALL ZONES
63°
63°


5:18
Driver
Climate Control
17:18
Temperature
20°C
16°C
30°C
Fan Speed
2/5
Off
Max
Controls
Air Conditioning
63°
63°

APP LAYOUT (CONT.)



FUTURE WORK

- Actors and Sensors related to the app feature can be connected with the software
- The app can be setup for an Automotive car's stock climate control

SHORT APP DEMO

PLEASE PROVIDE YOUR FEEDBACK

Automotive Climate Control App