EC 500 J1 Project Final Report Chenxi Zhang

Abstract

This project is about to use a smartphone to unlock a car door. In order to achieving this goal, I choose to use an iOS App as my operation tool, Amazon Web Service as the data relay, and FRDM-K64 Board as the controller, and a LED light represents the car door, when it on, means the car door is unlocked

The Technologies that this project used:

- Authentication by using fingerprint and voice recognition - Connectivity by using Ethernet, 802.11, TCP/IP

- APIs by using Apple Touch ID, Amazon Web Service

- IoT

- FRDM-K64 Board

This project is not finished at final, I only let the iOS App and TouchID part work, but the IoT part didn't get work.

Discussion of Failure

1. iOS connect to AWS failure:

I use the Official IoT SDK provided from amazon, and it create a critical error: "no such module 'AWSCore' ",
iOS App Critical Error:
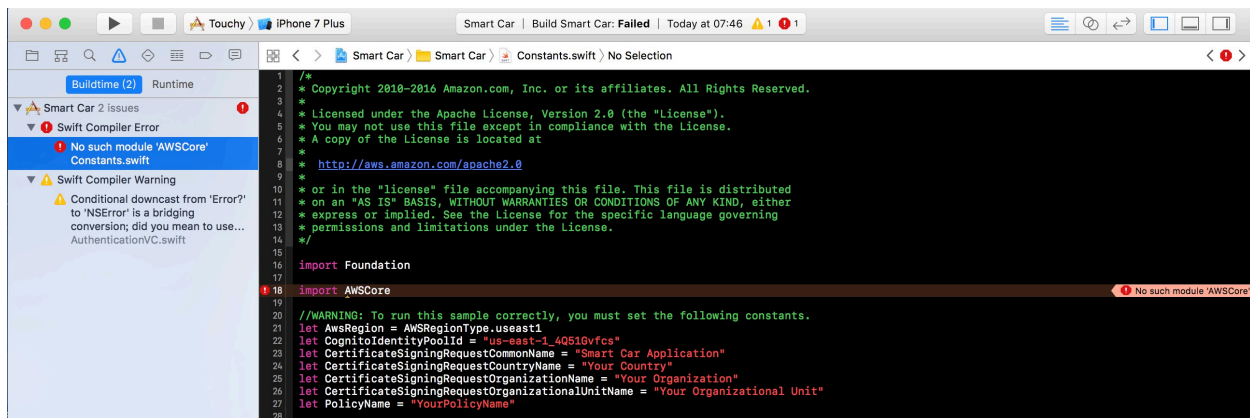
This error is directly resulting that the whole app can not build the connection to Amazon AWS IoT Platform

2. FRDM K64F Connect to AWS failure

Finally, I cannot solve the connect issue between AWS and FRDM board, AWS can send the signal out, but the FRDM board is not able to receive that information through ethernet.

Technical report on success of the project

1. iOS App

I successfully build the iOS App, I learned how to use UIController to organize the whole application and how to control the UI's behavior.
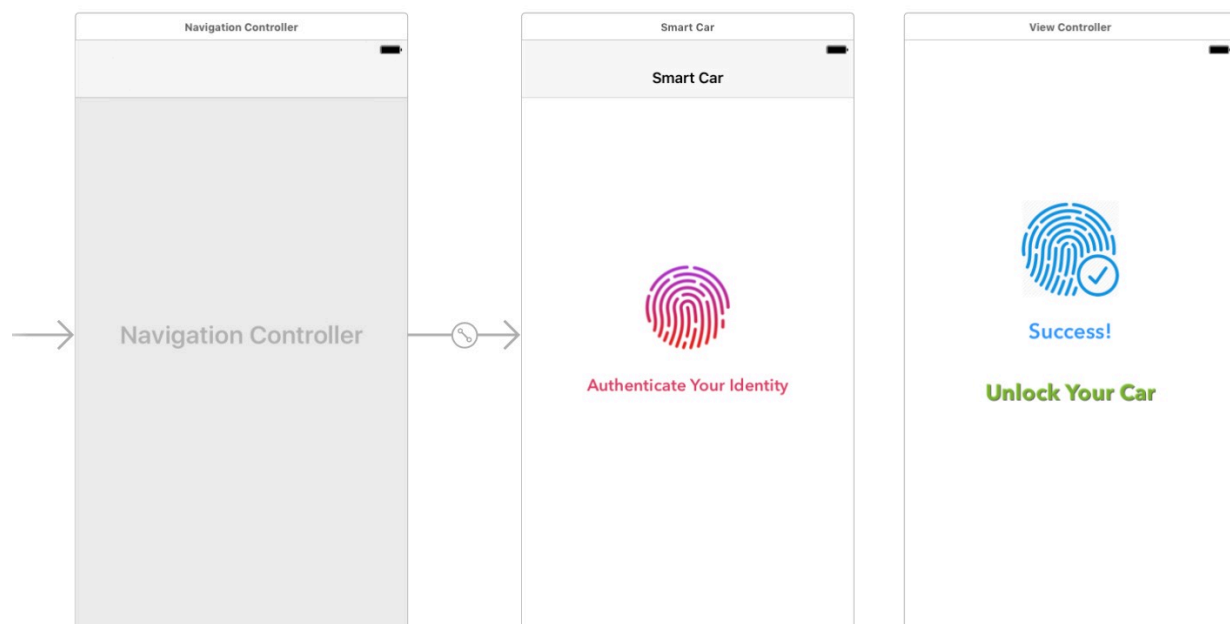
2. Touch ID for authentication check

About this module, I used the localAuthentication framework to build the fundamental security for the app, to ensure an absolute security and connivence. Because Touch ID doesn't store any images of user's fingerprint. It

stores only a mathematical representation of user's fingerprint. It isn't possible for someone to reverse engineer user's actual fingerprint image from this mathematical representation. The chip in user's device also includes an advanced security architecture called the Secure Enclave which was developed to protect passcode and fingerprint data.

Some items to consider:

- Software is not limited to the code you write! Did you install a server? Are you using an API? Provide any libraries/packages that you used, including how to get and install them if necessary

I used LocalAuthentication library as the framework of security, I installed the Pod for attempting connect iOS App to Amazon AWS.

- What did you learn from user's project?

iOS App Development, TouchID, IoT, Authentication, User Interface .