

Industrial Training 1



Datatec

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CCE-C

ACKNOWLEDGMENTS

I am highly grateful to all the people who have supported me through out the whole period of this internship from my family and colleagues to my mentors and supervisors. Had I not been blessed with such exceptional people, after god's blessing, this internship would have not been possible.

A special thanks to my mentor Ahmed El Kattan for guiding me both technically and professionally during the whole period of the internship.

EXECUTIVE SUMMARY

Almost any business nowadays requires a software system to be managed properly. This report covers how I was able to take part in developing one of those systems during my 4-week internship at Datatec. I was lucky enough to have joined the team during the period in which they had just been starting a new project for Egyptian schools, so not only did I go through the implementation phase, I was also there during the design phase.

In this report I will walk you through all the details of this particular project, what I was expected to do, the technologies and frameworks we have used, and my achievements out of this internship as a UI developer.

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INTRODUCTION

About Datatec

Datatec is a software solutions company that utilizes different technologies to deliver up-to-date and robust software products to its clients to help them manage their businesses.



How my Internship went

During my four weeks in the internship, I spent the first two weeks in mobile development using flutter, and the last two weeks developing the admin panel for the project using react.JS. This project is still on going with other members in the company, I just happened to be a part of it during my internship period.

PROJECT DETAILS

Description

The project is mainly about creating a system that notifies students about their bus arrival time, upcoming exams and assignments due dates. It is also for parents to be able to track down their children's progress in the school. And there is an admin panel for the staff and teachers to add bus schedules, due dates, and pretty much manage any interaction done with the system like doing the basic CRUD operations to the users/students/stations/routes/trips/drivers...etc.

Software products

In order to design such system, we needed to deal with three sub projects:

1. A cross-platform application for the students and parents. Which changes a little bit depending on the role of the user that is logged in.
2. A cross-platform application for the bus driver. In order to show them the route/card transactions/students' stop...etc.
3. A Web application for the admins and teachers.

Used Frameworks and Technologies

1. Flutter

That was the framework used for developing the cross-platform applications and it was integrated with both firebase for notifications and authentication and the main backend server for normal data retrieving and posting.

2. React.JS

It was used for the admin panel UI, and it was also integrated with some other third library packages for both the functionality and the UI enhancements.

3. Node.JS

It was used to develop the main backend server for the whole project with the help of express. And it also used firebase admin SDK to authenticate coming requests from users using the JWT, and manage notifications.

4. MySQL and TypeORM

MySQL was the database that the backend server interacted with and TypeORM was the ORM used to facilitate using the database with normal functions instead of writing traditional SQL

5. Firebase

Firebase was used to help the main backend with some ready to use functionalities like the complete process of authenticating users, providing a notification server using firebase cloud messaging, and it was used for the mail server as well.

My Role in the project

I have personally taken part in developing both the UI of the student-parent/driver application and the admin panel using Flutter and react.JS respectively. And as an intern, I was really surprised by the amount of work they trusted me with for developing this project.

1. Application:

- a. Parent-student app: The app for the students and parents was basically the same one but depending on the currently logged in user it determines what to show. It whether shows the assignments, exams and bus arrival times for the students or show the student academic progress and current status (at school/ on the way to school/ back from school/at home...etc.) for the parents.
- b. Bus driver app: It shows the driver all his/her trips and the list of students for each trip. It also shows him/her the route to follow during each trip and it is responsible for the NFC card transaction that each student makes each time they come up to the bus.

2. Admin panel:

As mentioned before the admin panel was basically a mean for admins and teachers to manage the system and it included the following:

- a. Users
- b. Students
- c. Grades
- d. Bus Schedule
 - i. Trips
 - ii. Trip Templates
 - iii. Routes
 - iv. Stations

Admins are able to view, add, edit and delete each one of those categories according to their user role permission; each user has a role and each role has certain permissions like user View, student Edit...etc.

What I have learned

1. Technically:

- i. **React.JS:** I already had a prior fair amount of knowledge about react, but during my internship I have learned so many new best practices and how to structure the project properly from the team I worked with. I have also learnt how to deal with different branches in git. In addition to completely new things like localizations for supporting multiple languages, offline data updating after a request, and dealing with multiple types of file uploads.
- ii. **Flutter:** Before the internship, I knew nothing about flutter and mobile development, and given the amount of time spent in the internship, I feel like I have learned a lot during such a short period. From the basic UI screens and navigations to integrating flutter with firebase and push notifications.

2. Professionally

I have learnt how coworkers usually work together in an agile work environment, how important it is to write readable code and communicate properly with other members of the team.

Some parts of the Project UI I have worked on

Admin Panel

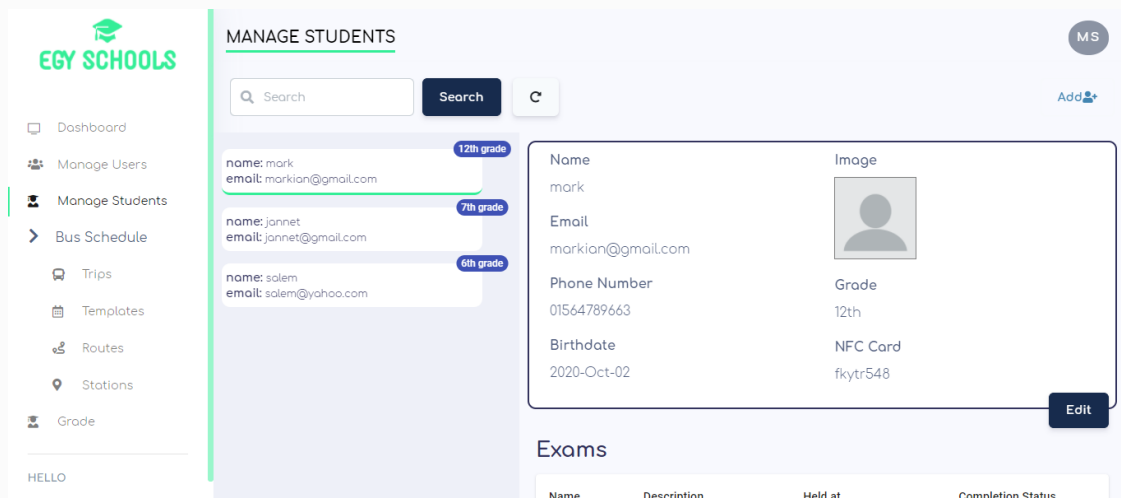


Figure 1 Students Page

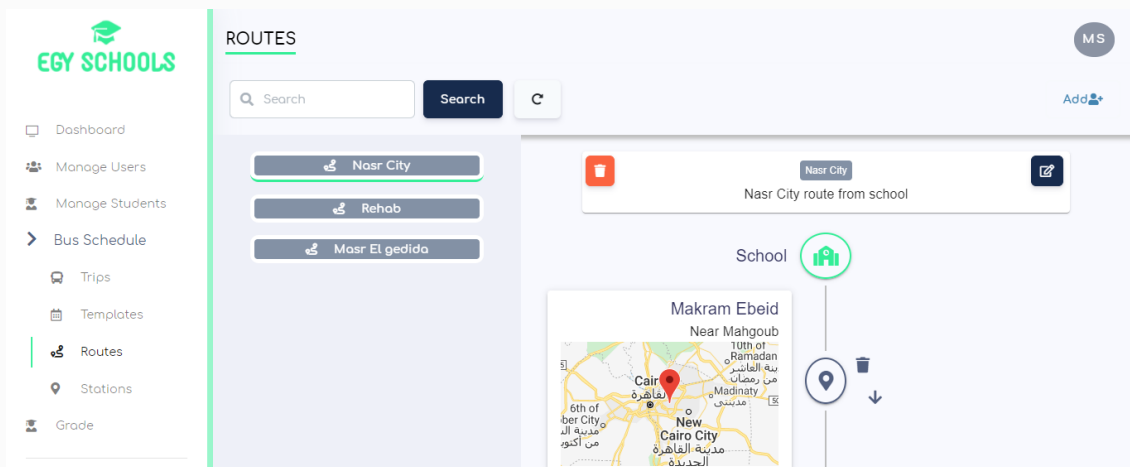


Figure 2 Routes Page

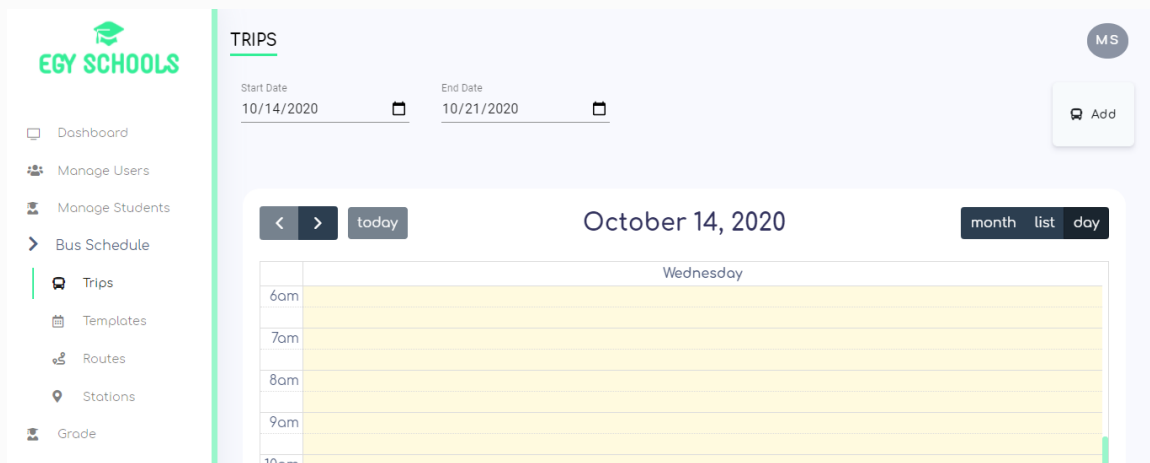


Figure 3 Trips Page

Students-Parents Application (In portrait mode):

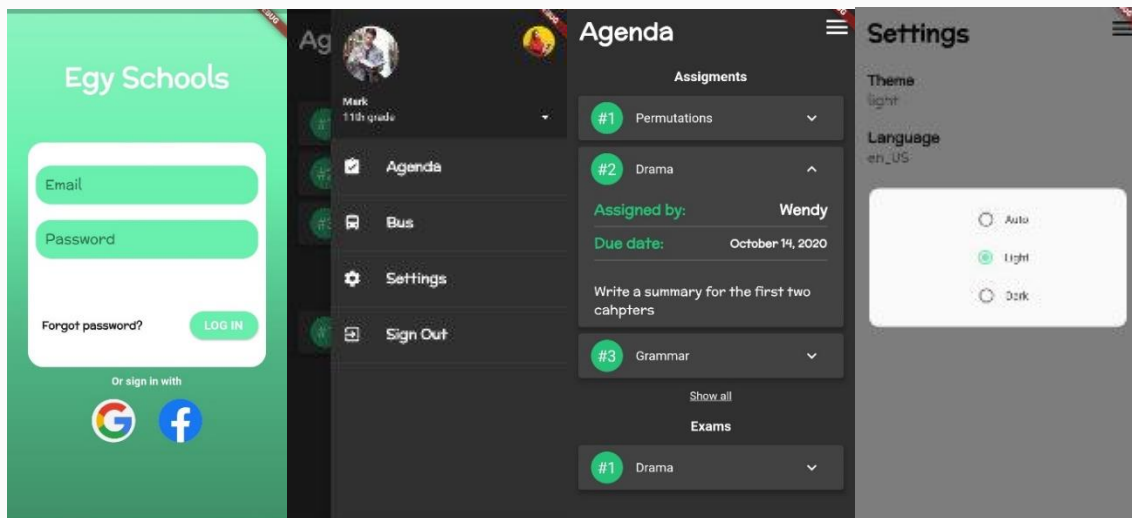


Figure 4 Login Screen

Figure 5 Side Drawer

Figure 6 Agenda Screen

Figure 7 Settings screen

Bus driver Application (In landscape mode):

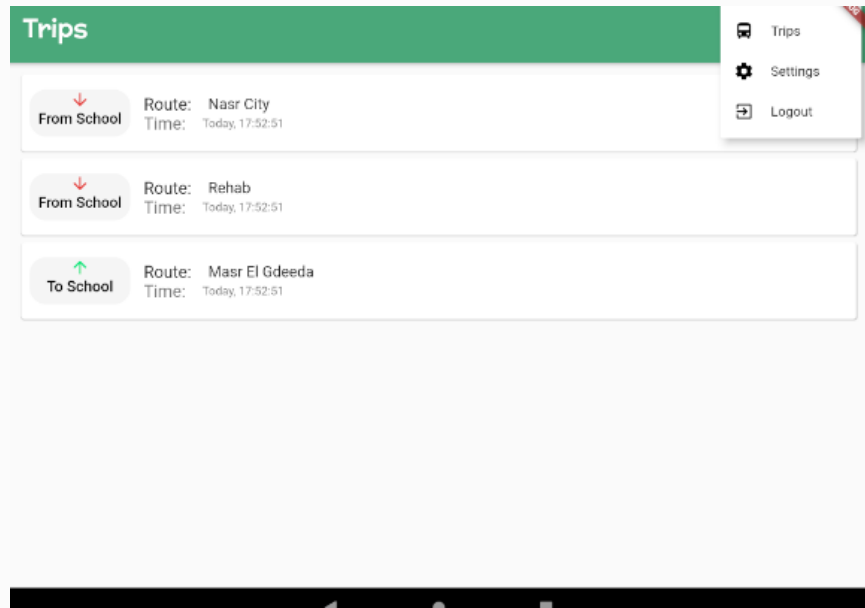


Figure 8 Driver Trips Screen

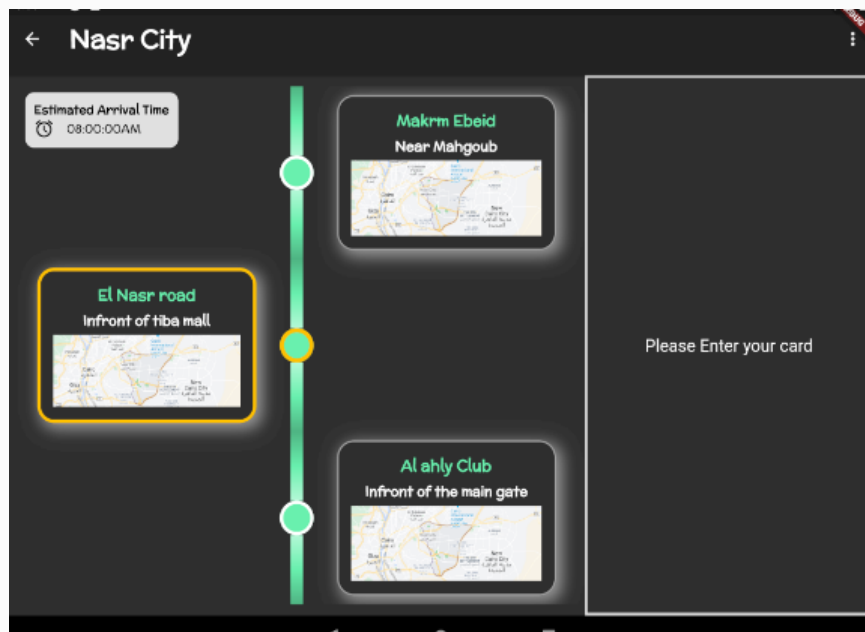


Figure 9 Driver Route Screen

CONCLUSION

Although I have learnt a lot out of this internship, but the more I learn, the more I become aware of the many other things to learn as well. I am looking forward to my next work encounter as a software developer to put my current gained experience into use and gain more experience.