

CSCI 6907: FINAL PROJECT REPORT
TIME CARD

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1. INTRODUCTION

Tracking time and effort is crucial. TimeCard application helps keeping track of your time and earnings at your hourly job or track time as an employer. Jump in and start a timer with two clicks. View your earnings (even overtime!) in the app, or export via e-mail in text format and work with it however you need to. This **Time card application** includes time and expense tracking, task scheduling and distance tracking in one easy to use, clean and intuitive interface. With innovative patent pending technology, combined with powerful business intelligence reporting this application will deliver results straight to the bottom line.

Firstly, it is used for keeping track of the hours worked. Secondly, it supports selection from multiple jobs and addition of a new job(s)/employee. Thirdly, it helps the user to clock-in and clock-out according to their scheduled hours, while the application is still running in the background. Lastly, at the end of each pay period, we can export our time card which consists of total hours worked along with total pay earned and send an email to our boss or client.

Apart from the above features it permits us to create a new task, set priorities, assign reminders, add notes and set a notification in the form of an alarm at the prescribed time. This application also has the feature to show the distance between the current location and the job location.

2. PROJECT CONFIGURATIONS

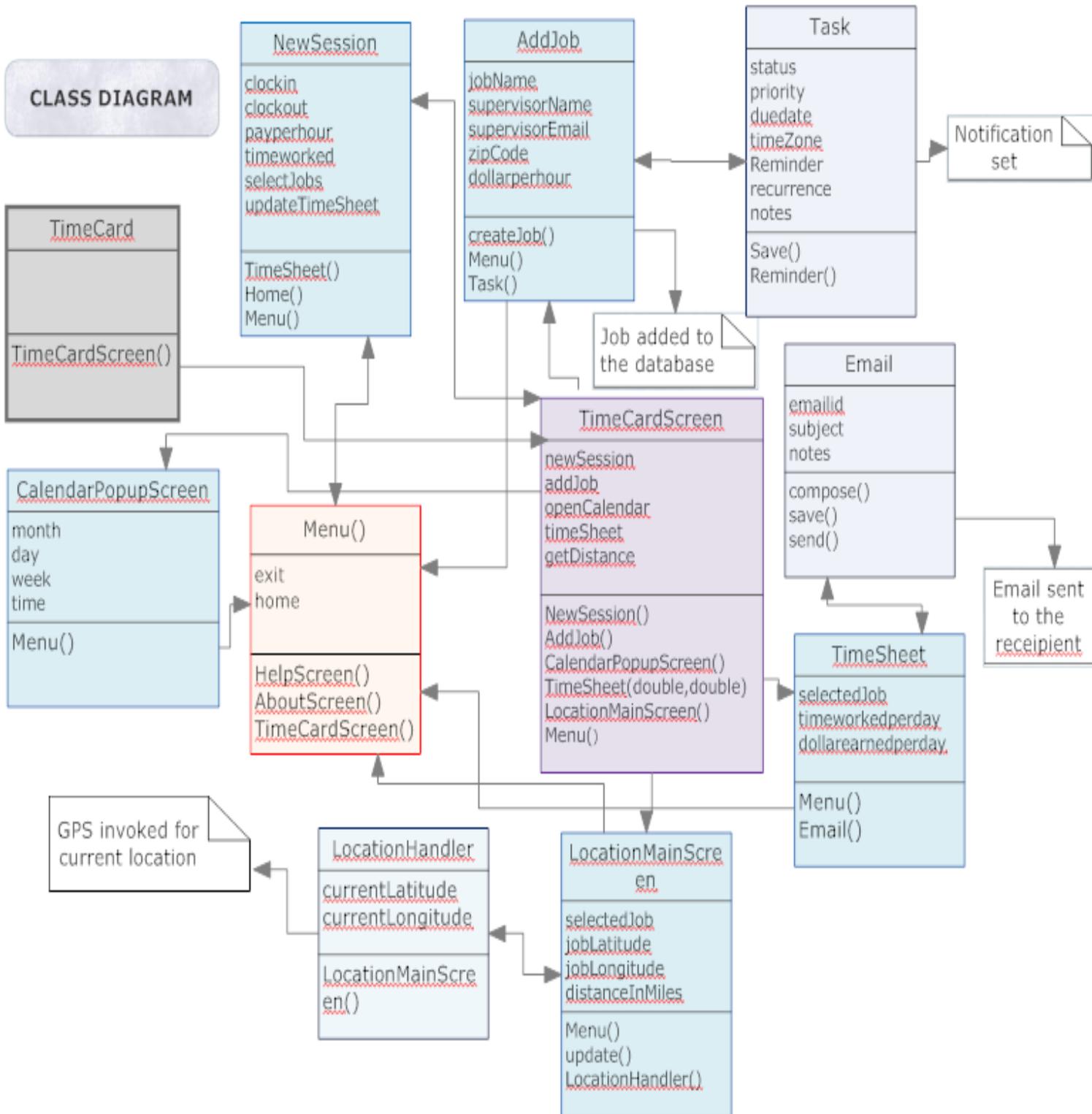
- IDE: Eclipse v3.6.1
Blackberry Java plug-in v1.5.0

- System Configuration: Windows 7, 64-bit OS

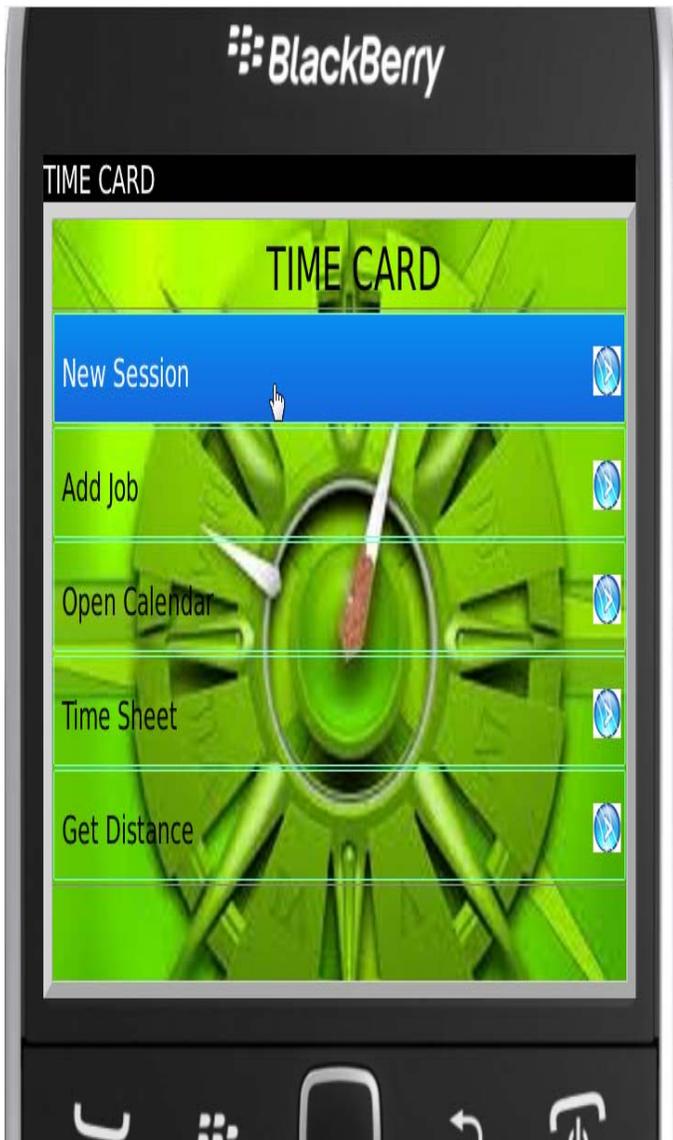
- Development Platform: Java SDK 1.6.0
Blackberry JDE 7.1.0

- Database: SQLite v3.6.21
- Tested on: Blackberry 9930 simulator

3. ARCHITECTURE



4. IMPLEMENTATION

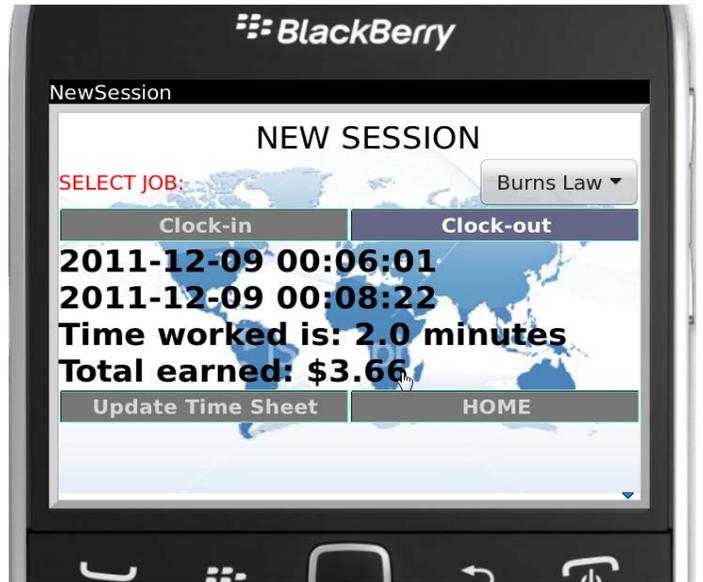


This application consists of many features which have been implemented using 4 packages, 9 classes and 8 sub-classes. The following is the project tree of my application:

- com.samples.toolkit.ui
 - FieldDimensionUtilities
- com.samples.toolkit.ui.component
 - BaseButtonField
 - EmbossedButtonField
 - ListStyleButtonField
- com.samples.toolkit.ui.container
 - JustifiedEvenlySpacedHorizontalManager
 - VerticalButtonFieldSet
- com.sneha
 - TimeCard
 - TimeCardScreen
 - NewSession
 - AddJob
 - CreateTask
 - CalendarPopupScreen
 - TableLayoutManager
 - TimeSheet
 - SendEmail
 - GetDistance
 - Help
 - About

4.1 NewSession

This class allows the user to first select a job out of the multiple jobs from the drop-down list. Next, clicking on *Clock-in* displays the current time while clicking on *Clock-out* displays the clock-out time, total time worked and total pay earned. Finally, clicking on *Update TimeSheet* will navigate to the time sheet page and the time sheet for the selected job gets updated. Apart from the above features there is also an option to go back to the home page.



Additionally, you can clock-in and push the application to run in the background. Once the scheduled time is over we can turn into the application and click clock-out.

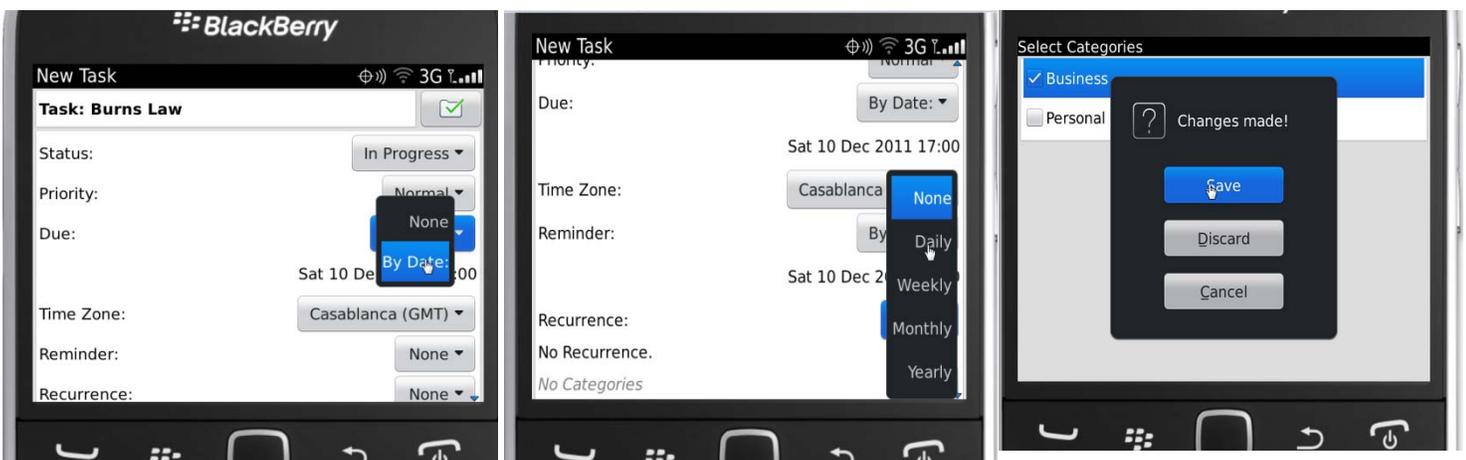
4.2 AddJob



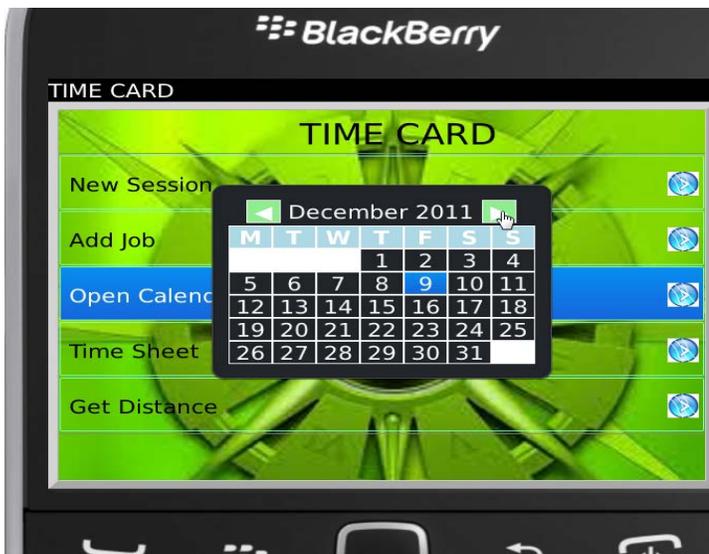
This feature allows us to create a new job and add all the necessary details to the database. Details such as job name, supervisor name, supervisor emailId, zip code and pay/hour is to be provided by the user. With the help of mysql queries create, select, insert and update all the above details are stored in the SQLite Database.

4.2.1 CreateTask

From this screen, there is an option from the menu items to create a new task. Through this we can create a task and add a task name, due date, time zone, reminder, business/personal note and save it. This feature is integrated with the task application of the blackberry phone. Depending on the reminder set, the application will push an alarm at the desired time with the note and task name flashing on the screen. You can either turn off the alarm or snooze-it.



4.3 PopUpCalendar

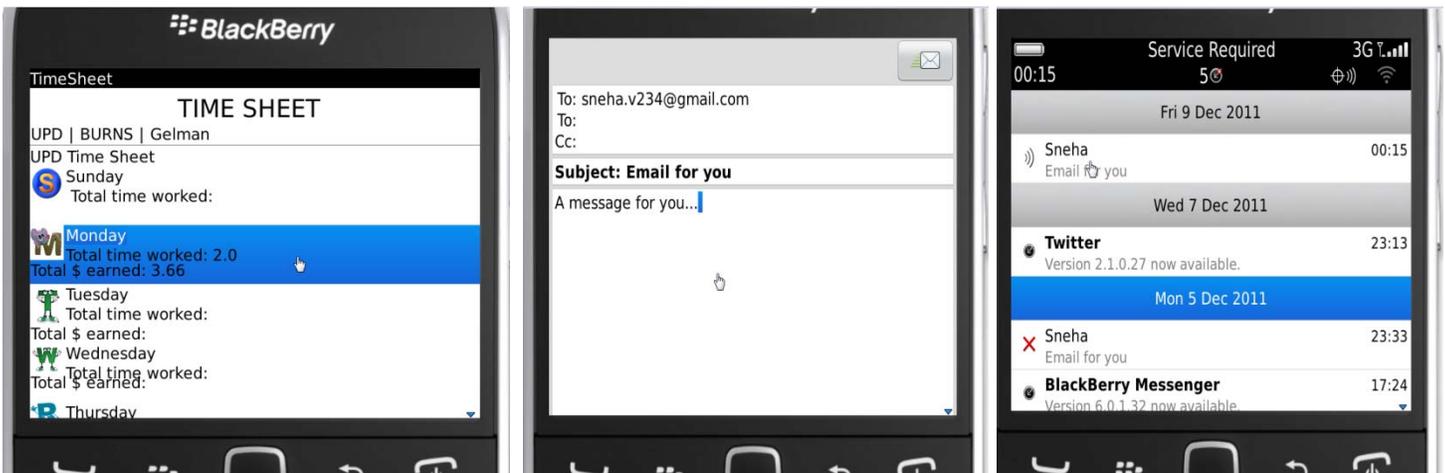


This feature pops up the calendar designed in a tabular format. By clicking the right and left arrows beside the month and year, we can navigate to the next and the previous month respectively.

4.4 TimeSheet

This feature displays the updated time sheet for each job we have saved in the database.

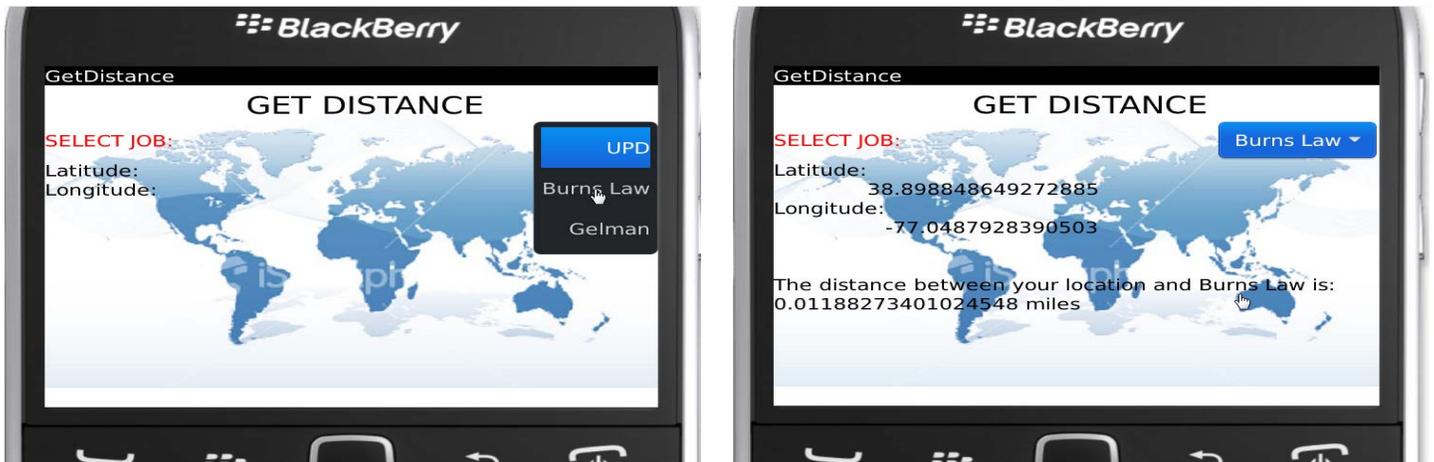
Each job's timesheet is saved as a separate tabbed pane. Apart from this there is an option to send an email from the list of menu items. You can create a new email, edit the subject, compose the matter, save as a draft or send to the recipient. This is further saved in the blackberry messenger list. This was developed using the *invoke.messenger* API.



The email feature was developed using the *invoke.messenger* API and integrated with the blackberry mail box feature.

4.5 GET DISTANCE

This feature invokes the GPS of the device and gets the current latitude and longitude point using *invoke.gps* API. By selecting the job location from the drop-down menu, this class calculates the distance from the current location and the job location. This will help in estimating time to reach our job location.



5. PROBLEMS ENCOUNTERED

During the development process, the first difficulty I encountered was to integrate my custom calendar with the task feature which will allow the user to view the task on each day of the calendar. I could not integrate both the features. Secondly, I wanted to working on routing feature between the current location and the job location, but I had a problem loading the maps on the simulator.

There were issues when I was updating the database and the changes had to reflect in 3 different classes namely NewSession, TimeSheet and GetDistance. To avoid the complexity I made the changes in database affect only one class and automatically made the other 2 classes inherit the changes occurred in the first class.

6. CONCLUSION

I have successfully developed all the features of the TimeCard application and integrated all of them with no errors. I have tested this application on various blackberry models and have run the application with no difficulties.

During the development process I have come across many challenges with the design, integration and testing of the application. But, having tested this application successfully, it can now be used in real-time with ease and comfort. This will definitely save our time from filling out paper written time sheets and makes it easy to keep an eye of the number of hours worked and the amount earned at the end of each day and at the end of each week at various job locations.

7. REFERENCES

- For the design and UI implementation
<http://supportforums.blackberry.com/t5/Java-Development/Implement-advanced-buttons-fields-and-managers/ta-p/488276>

- For the database integration
<http://stackoverflow.com/questions/3341101/blackberry-and-sqlite>

- For sending email feature
<http://supportforums.blackberry.com/t5/Java-Development/Sending-email-messages/ta-p/442790>

- For invoking the gps and calculating the distance between two latitude and longitude points
Book on Apress Beginning BlackBerry Development.Nov.2009, by Anthony Rizk