1.Document Title

Smart Bike Docking System

2.Team Name

Group 6

3.Project Name

The Docky

4.Student's names and IDS

Team Member Names (Please Print)	Signatures	Student ID
Project Leader: Nathan Ryan	R. Nathan	n01425273
Semen Dyakonov	D. Semen	n01391812
Nissan Rayappu	R.Nissan	n01435235
Binay Pawan Garlapati	G.Binay pawan	n01368870

5.Table of Contents

6. Team Contract

7. Signatures Of Team Members

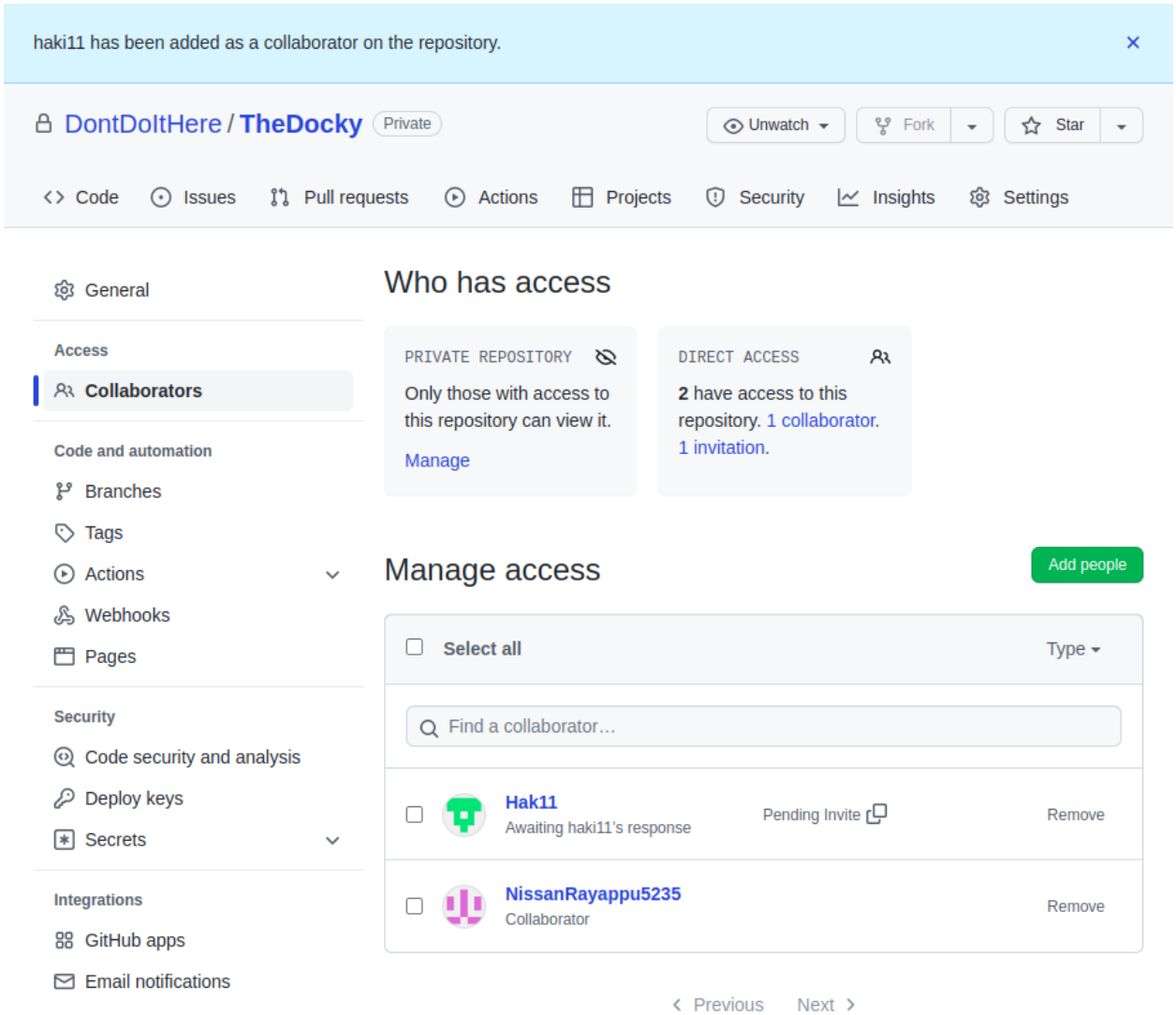
1. G. Binay Pawan
2. R.Nissan
3. R.Nathan
4. D.Semen

8.GitHub Repo

https://github.com/SemenDyakonov1391812/TheDocky

9. 2 Commits by Everyone

10.Screenshot of github invitation



11.Project Background and Description

1.The final vision of the Docky system is to have a completely connected network of bike docks around the city. We want it to be accessible to everyone with a simple lock an unlock feature. The Docky app will streamline payments and bike sharing with friends with a simple and easy to navigate app.

2.Firstly, we need to buy a solenoid that will push a metal bar in between the bicycle wheel spokes/frame. This prevents the bike from moving and the solenoid won't move until activated by the mobile app. Next, we need a weight sensor to detect if the bike moves out of the spot. This will send a notification to the users' phones telling them their bike has moved out of the docking station. Also, we will need some LED lights. A red one to show that the bike is locked in the dock and a green one if the dock is available. Lastly, we will have a LCD display that will show how long the bike has been there and the username of the person who parked it there. The app is connected to the Dock and is essential to the function of the circuit. The input of the user will be sent to the database and the docky system will take the user inputs to move the locks and change the LCD display.

3. This app is a bike parking app. This app would open with a login screen and have an option for signup and the user would input their information to login to the docky app. The timer screen would have a dock/undock option to park the bike. Users can even see their current location in maps fragment. Then the next screen will be a lock and unlock button which will be deactivated until the user goes to the third page. This third page has a gps location of the bike dock they're at and will also tell the user the status of their bikes. FInally, the 4th fragment will be a payment method page and view the last transactions too. This app would charge you only 1 cent per second. Users can see their past transactions on their payment screen. Users will get free 100 dollars wallet balance in the payment fragment while they signup for the account. While the balance goes to (-) then they'll get a notification to pay the payment through the payment card form. Then users can pay by using their debit/credit.

4. We have guided to do one fragment per one group member. First fragment is about the login page where you will need to put your credentials. Next fragment is about GPS, so it will display the map which depends on user location and will show user the closest lock spots. Third one is about lock and unlock buttons. And last one is the payment page where the user will need to put his card information to pay for bike locker.

5. Using firebase, we will incorporate user id's and passwords. All information will be stored in our Cloud Database and to retrieve it, you need to verify your identity. After that we will connect our database to Android App and Raspberry PI, so they can work in real time. When user try to unlock or lock his bike, our app will automatically make a request to the database and depending on the answer it will send signal to our PI. Also it will store time information about

how long the bike was locked and after that our app will make a request to the database and based on the answer will give to our users the right price based on rate. So our database will store login information and lock time.

12. Project Scope

The project does have a lot of moving parts. Incorporating the building of the hardware aspect, we plan to have the hardware materials before week 7. We can create most of the GUI before then and try to get all of the fragments in a working state. The hardware circuit will be created before the end of November so we have enough time to monitor how the PI works with the database and the features of the app can actually engage all the moving parts in our circuit.

13. Write Minimum of 1 theme (two epics, and 3 stories for each epic).

THEME

The Goal of this project is to introduce a new Docking device that provides safe parking to the public where they can park their Bikes.

EPICS

1) Giving login access in the App to the user/customer, with additional feature that will allow the user to lock and unlock the docking station inside the App.
2) Providing users with real time location services along with a safety feature that will let users know about the current state of the Docking station. A payment method will also be added inside the App where users will be allowed to pay for the time that their Bike was parked at the Docking station.

STORIES

1. **EPIC 1**

I. Creating Login Page and attractive UI
II. Developing the lock and unlock system inside the app
III. Able to retrieve users data and all other real time location data and storing it in a database.

2. **EPIC 2**

I. Transferring the retrieved real time data to the App
II. Enabling location services and being able to send the exact location and current state of the device to the App.
III. Allowing users to pay through providing multiple online payment methods inside the App.