InPace

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Contents

1 Hierarchical Index **1**

1.1 Class Hierarchy . . . 1

2 Class Index **3**

2.1 Class List . . . 3

3 File Index **5**

3.1 File List . . . 5

4 Class Documentation **7**

4.1 AppDelegate Class Reference . . . 7

4.2 AppDelegate() Category Reference . . . 7

4.3 BTDiscover Class Reference . . . 7

4.3.1 Detailed Description . . . 8

4.3.2 Method Documentation . . . 8

4.3.2.1 centralManager:didConnectPeripheral: . . . 8

4.3.2.2 centralManager:didDisconnectPeripheral:error: . . . 8

4.3.2.3 centralManager:didDiscoverPeripheral:advertisementData:RSSI: . . . 8

4.3.2.4 centralManagerDidUpdateState: . . . 9

4.3.2.5 scanForWristband . . . 9

4.3.3 Property Documentation . . . 9

4.3.3.1 bt_periph . . . 9

4.3.3.2 manager . . . 9

4.3.3.3 wristband . . . 9

4.4 BTSendRec Class Reference . . . 9

4.4.1 Detailed Description . . . 10

4.4.2 Method Documentation . . . 10

4.4.2.1 distance:secondPoint: . . . 10

4.4.2.2 time:endTime: . . . 10

4.4.2.3 writeFile:toDatabase: . . . 10

4.5 BTSendRec() Category Reference . . . 11

4.6 Database Class Reference . . . 11

4.6.1 Detailed Description . . . 11
4.6.2 Method Documentation . . . 11
4.6.2.1 init_dbfile: . . . 11
4.6.2.2 query: . . . 12
4.6.3 Property Documentation . . . 12
4.6.3.1 columns . . . 12
4.6.3.2 file . . . 12
4.6.3.3 last_rowid . . . 12
4.6.3.4 results . . . 12
4.7 RouteInfoViewController Class Reference . . . 12
4.7.1 Detailed Description . . . 13
4.7.2 Method Documentation . . . 13
4.7.2.1 loadRouteData . . . 13
4.7.3 Property Documentation . . . 13
4.7.3.1 arrRouteCoord . . . 13
4.7.3.2 dbManager . . . 13
4.7.3.3 mapView . . . 13
4.7.3.4 routeID . . . 13
4.8 RouteInfoViewController() Category Reference . . . 13
4.9 RoutesViewController Class Reference . . . 14
4.10 RoutesViewController() Category Reference . . . 14
4.10.1 Detailed Description . . . 14
4.10.2 Method Documentation . . . 14
4.10.2.1 loadData . . . 14
4.10.3 Property Documentation . . . 14
4.10.3.1 arrRoutesInfo . . . 14
4.10.3.2 dbManager . . . 15
4.10.3.3 routeID . . . 15
4.10.3.4 tblRoutes . . . 15
4.11 SettingsViewController Class Reference . . . 15
4.12 SettingsViewController() Category Reference . . . 15
4.13 SyncDataViewController Class Reference . . . 15
4.14 SyncDataViewController() Category Reference . . . 16
4.14.1 Detailed Description . . . 16
4.14.2 Property Documentation . . . 16
4.14.2.1 discover . . . 16
4.14.2.2 testTextView . . . 16
4.15 ViewController Class Reference . . . 16
4.16 ViewController() Category Reference . . . 16
4.16.1 Detailed Description . . . 16

5 File Documentation **17**

5.1 InPace/InPace/BTSendRec.h File Reference 17

5.1.1 Detailed Description 17

5.1.2 Macro Definition Documentation 17

5.1.2.1 BLE_UUID 17

5.1.2.2 PI 18

5.1.2.3 RADIUS 18

5.1.2.4 RWT_BLE_SERVICE_CHANGED_STATUS_NOTIFICATION 18

5.1.2.5 RX_UUID 18

5.1.2.6 to_rad 18

5.1.2.7 TX_UUID 18

Index **19**

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

AppDelegate() . . . 7
BTSendRec() . . . 11
<CBCentralManagerDelegate>
    BTDiscover . . . 7
<CBPeripheralDelegate>
    BTSendRec . . . 9
<CLLocationManagerDelegate>
    RouteInfoViewController . . . 12
<MKMapViewDelegate>
    RouteInfoViewController . . . 12
NSObject
    BTDiscover . . . 7
    BTSendRec . . . 9
    Database . . . 11
RouteInfoViewController() . . . 13
SettingsViewController() . . . 15
SyncDataViewController() . . . 16
<UIApplicationDelegate>
    AppDelegate . . . 7
UIResponder
    AppDelegate . . . 7
<UITableViewDataSource>
    RoutesViewController . . . 14
    RoutesViewController() . . . 14
<UITableViewDelegate>
    RoutesViewController . . . 14
    RoutesViewController() . . . 14
UIViewController
    RouteInfoViewController . . . 12
    RoutesViewController . . . 14
    SettingsViewController . . . 15
    SyncDataViewController . . . 15
    ViewController . . . 16
ViewController() . . . 16

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

AppDelegate . . . 7
AppDelegate() . . . 7
BTDiscover
    Class responsible for finding and connecting/disconnecting peripheral . . . 7
BTSendRec
    Class responsible for doing the data transmission to the connected peripheral . . . 9
BTSendRec() . . . 11
Database
    Database manager class . . . 11
RouteInfoViewController . . . 12
RouteInfoViewController() . . . 13
RoutesViewController . . . 14
RoutesViewController() . . . 14
SettingsViewController . . . 15
SettingsViewController() . . . 15
SyncDataViewController . . . 15
SyncDataViewController() . . . 16
ViewController . . . 16
ViewController() . . . 16

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

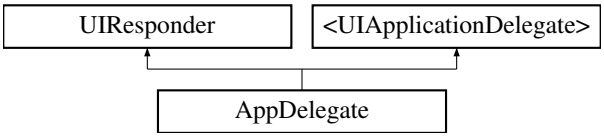
InPace/InPace/**AppDelegate.h** . . . . . **??**
InPace/InPace/**BTDiscover.h** . . . . . **??**
InPace/InPace/BTSendRec.h
Bluetooth send and receive functionality 17
InPace/InPace/**Database.h** . . . . . **??**
InPace/InPace/**RouteInfoViewController.h** . . . . . **??**
InPace/InPace/**RoutesViewController.h** . . . . . **??**
InPace/InPace/**SettingsViewController.h** . . . . . **??**
InPace/InPace/**SyncDataViewController.h** . . . . . **??**
InPace/InPace/**ViewController.h** . . . . . **??**

Chapter 4

Class Documentation

4.1 AppDelegate Class Reference

Inheritance diagram for AppDelegate:



The documentation for this class was generated from the following file:

- InPace/InPace/AppDelegate.h

4.2 AppDelegate() Category Reference

The documentation for this category was generated from the following file:

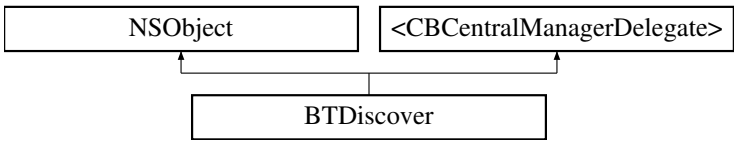
- InPace/InPace/AppDelegate.m

4.3 BTDiscover Class Reference

Class responsible for finding and connecting/disconnecting peripheral.

`#import <BTDiscover.h>`

Inheritance diagram for BTDiscover:



Instance Methods

- (void) - scanForWristband

- (void) - centralManagerDidUpdateState:
- (void) - centralManager:didDiscoverPeripheral:advertisementData:RSSI:
- (void) - centralManager:didConnectPeripheral:
- (void) - centralManager:didDisconnectPeripheral:error:

Properties

- BTSendRec * wristband
- CBCentralManager * manager
- CBPeripheral * bt_periph

4.3.1 Detailed Description

Class responsible for finding and connecting/disconnecting peripheral.

This class is largely a wrapper around the CBCentralManager class and also acts as its delegate object. As such, many of its functions are implemented so the class conforms to the CBCentralManagerDelegate protocol.

4.3.2 Method Documentation

4.3.2.1 - (void) centralManager: (CBCentralManager*) *central* didConnectPeripheral:(CBPeripheral*) *peripheral*

This function is called when a peripheral was successfully connected to by our CBCentralManager object. Part of the CBCentralManagerDelegateProtocol.

Parameters

central	The CBCentralManager object
peripheral	The peripheral that just got connected

4.3.2.2 - (void) centralManager: (CBCentralManager*) *central* didDisconnectPeripheral:(CBPeripheral*) *peripheral* error:(NSError*) *error*

This function is called when a peripheral has disconnected. Part of the CBCentralManagerDelegate protocol.

Parameters

central	The central manager object
peripheral	The peripheral that has been disconnected
error	The cause of faliure, if any

4.3.2.3 - (void) centralManager: (CBCentralManager*) *central* didDiscoverPeripheral:(CBPeripheral*) *peripheral* advertisementData:(NSDictionary*) *advertisementData* RSSI:(NSNumber*) *RSSI*

This function is called when a peripheral was discovered during scanning by the CBCentralManager object. Part of the CBCentralManagerDelegate protocol.

Parameters

central	The central manager object
peripheral	The discovered peripheral

advertisement-Data	The advertisement data (if any)
RSSI	The signal strength

4.3.2.4 - (void) centralManagerDidUpdateState: (CBCentralManager*) *central*

This function is called whenever the CBCentralManager object changes its state. This function is required by the CBCentralManagerDelegate protocol.

Parameters

central	The central manager object

4.3.2.5 - (void) scanForWristband

Initiate scan for the InPace wristband

4.3.3 Property Documentation

4.3.3.1 - (CBPeripheral*) bt_periph [read], [write], [atomic], [strong]

Pointer to the discovered Bluetooth peripheral

4.3.3.2 - (CBCentralManager*) manager [read], [write], [atomic], [strong]

Pointer to the internal central manager object

4.3.3.3 - (BTSendRec*) wristband [read], [write], [nonatomic], [strong]

Pointer to class to handle sending and receiving data to and from the Bluetooth peripheral

The documentation for this class was generated from the following files:

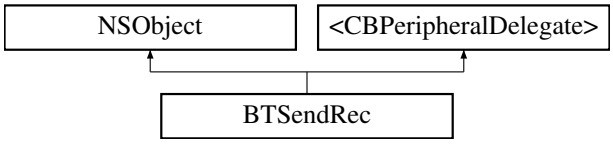
- InPace/InPace/BTDiscover.h
- InPace/InPace/BTDiscover.m

4.4 BTSendRec Class Reference

Class responsible for doing the data transmission to the connected peripheral.

`#import <BTSendRec.h>`

Inheritance diagram for BTSendRec:



Instance Methods

- (void) - writeFile:toDatabase:
- (double) - distance:secondPoint:
- (int) - time:endTime:

4.4.1 Detailed Description

Class responsible for doing the data transmission to the connected peripheral.

This class is largely a wrapper around CBPeripheral and also acts as its delegate object. As such, many functions are implemented so the class conforms to the CBPeripheralDelegate protocol.

4.4.2 Method Documentation

4.4.2.1 - (double) distance: (double*) *p1* secondPoint:(double*) *p2*

This function uses the Haversine Formula to compute the distance between two pairs of GPS coordinates. Both input parameters are assumed to be arrays of doubles of the form [Latitude, Longitude], both of which are in degrees.

Parameters

p1	An array of doubles of size 2 containing a pair of GPS coordinates
p2	An array of doubles of size 2 containing a pair of GPS coordinates

Returns

The function returns the calculated distance between the two points

4.4.2.2 - (int) time: (int*) *start* endTime:(int*) *end*

This function computes the difference between two timestamps. Both paramaters are assumed to be arrays of doubles of the form [Year, Month, Day, Hour, Minute, Second].

Parameters

start	An array of ints of size 6 containing time information
end	An array of ints of size 6 containing time information

Returns

The function returns the difference bewtween the two times in seconds

4.4.2.3 - (void) writeFile: (NSString*) *filename* toDatabase:(Database*) *db*

Parameters

filename	The name of the file whose content is to be parsed and placed into a database
db	The database where the data will be stored

The documentation for this class was generated from the following files:

- InPace/InPace/BTSendRec.h
- InPace/InPace/BTSendRec.m

4.5 BTSendRec() Category Reference

The documentation for this category was generated from the following file:

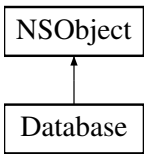
- InPace/InPace/BTSendRec.m

4.6 Database Class Reference

Database manager class.

`#import <Database.h>`

Inheritance diagram for Database:



Instance Methods

- (instancetype) - init_dbfile:
- (int) - query:

Properties

- NSString * file
- NSMutableArray * results
- NSMutableArray * columns
- long long int last_rowid

4.6.1 Detailed Description

Database manager class.

This class maintains an SQLITE database to hold the various Routes, Coordinates, and Times.

4.6.2 Method Documentation

4.6.2.1 - (instancetype) init_dbfile: (NSString*) *filename*

Initialization function for the Database object. The Database will use the file given by filename to store and load its data.

Parameters

filename	The name of the file to use as the database file

Returns

A pointer to the newly created Database object is returned

4.6.2.2 - (int) query: (NSString∗) *query*

The main function of the database. This function takes an SQL statement given by query and executes it on the database. If the satement executed was a SELECT statement, then the results will be stored in the arrays results and columns. Any other statement will simply results in these two arrays being empty. query() returns a status code from the SQLITE3 library to indicate the the success of the statement.

Parameters

query	The desired SQLITE statement to be executed

Returns

An SQLITE3 result code indicating the status of the statement

4.6.3 Property Documentation

4.6.3.1 - (NSMutableArray∗) columns [read], [write], [atomic], [retain]

Array to hold names of columns in result

4.6.3.2 - (NSString∗) file [read], [write], [atomic], [retain]

Name of database file

4.6.3.3 - (long long int) last_rowid [read], [write], [atomic], [assign]

RowID of the last thing inserted into the database

4.6.3.4 - (NSMutableArray∗) results [read], [write], [atomic], [retain]

Array to hold query results

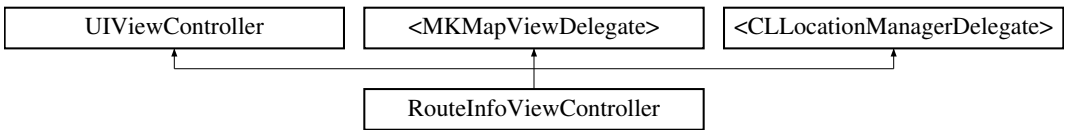
The documentation for this class was generated from the following files:

- InPace/InPace/Database.h
- InPace/InPace/Database.m

4.7 RouteInfoViewController Class Reference

`#import <RouteInfoViewController.h>`

Inheritance diagram for RouteInfoViewController:



Instance Methods

- (void) - loadRouteData

Properties

- IBOutlet MKMapView ∗ mapView
- long long int routeID
- Database ∗ dbManager
- NSMutableArray ∗ arrRouteCoord

4.7.1 Detailed Description

ViewController for viewing map and graph representation of individual route data

4.7.2 Method Documentation

4.7.2.1 - (void) loadRouteData

Method for pulling individual route coordinates based on the routeID

4.7.3 Property Documentation

4.7.3.1 - (NSMutableArray∗) arrRouteCoord [read], [write], [nonatomic], [strong]

array for holding route coordinates from DB

4.7.3.2 - (Database∗) dbManager [read], [write], [nonatomic], [strong]

instance of Database

4.7.3.3 - (IBOutlet MKMapView∗) mapView [read], [write], [nonatomic], [retain]

Map View

4.7.3.4 - (long long int) routeID [read], [write], [nonatomic], [assign]

holds ID of current route

The documentation for this class was generated from the following files:

- InPace/InPace/RouteInfoViewController.h
- InPace/InPace/RouteInfoViewController.m

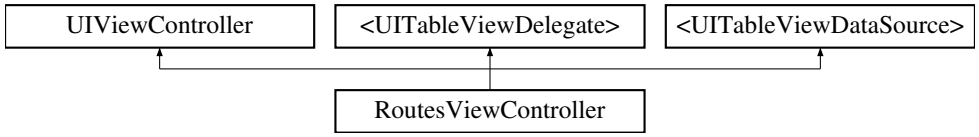
4.8 RouteInfoViewController() Category Reference

The documentation for this category was generated from the following file:

- InPace/InPace/RouteInfoViewController.m

4.9 RoutesViewController Class Reference

Inheritance diagram for RoutesViewController:

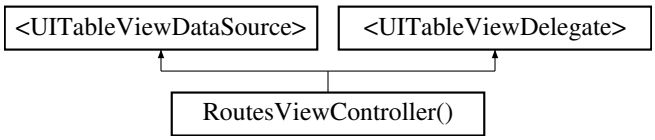


The documentation for this class was generated from the following file:

- InPace/InPace/RoutesViewController.h

4.10 RoutesViewController() Category Reference

Inheritance diagram for RoutesViewController():



Instance Methods

- (void) - loadData

Properties

- IBOutlet UITableView ∗ tblRoutes
- Database ∗ dbManager
- NSMutableArray ∗ arrRoutesInfo
- long long int routeID

4.10.1 Detailed Description

ViewController for viewing all routes in a tableview, option to click on route and view more info

4.10.2 Method Documentation

4.10.2.1 - (void) loadData

Method for loading data from database and putting it into the tableview

4.10.3 Property Documentation

4.10.3.1 - (NSMutableArray∗) arrRoutesInfo [read], [write], [nonatomic], [strong]

array for holding info of all routes in DB

4.10.3.2 - (Database∗) dbManager [read], [write], [nonatomic], [strong]

instance of database

4.10.3.3 - (long long int) routeID [read], [write], [nonatomic], [assign]

holds ID of current route

4.10.3.4 - (IBOutlet UITableView∗) tblRoutes [read], [write], [nonatomic], [weak]

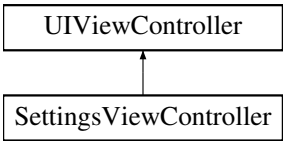
table view

The documentation for this category was generated from the following file:

- InPace/InPace/RoutesViewController.m

4.11 SettingsViewController Class Reference

Inheritance diagram for SettingsViewController:



The documentation for this class was generated from the following file:

- InPace/InPace/SettingsViewController.h

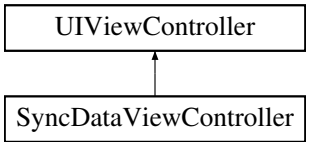
4.12 SettingsViewController() Category Reference

The documentation for this category was generated from the following file:

- InPace/InPace/SettingsViewController.m

4.13 SyncDataViewController Class Reference

Inheritance diagram for SyncDataViewController:



The documentation for this class was generated from the following file:

- InPace/InPace/SyncDataViewController.h

4.14 SyncDataViewController() Category Reference

Properties

- IBOutlet UITextView * testTextView
- BTDiscover * discover

4.14.1 Detailed Description

SyncDataViewController.mViewController for showing bluetooth data after syncing

4.14.2 Property Documentation

4.14.2.1 - (BTDiscover*) discover [read], [write], [atomic], [strong]

instance of BTDiscover, to discover peripherals

4.14.2.2 - (IBOutlet UITextView*) testTextView [read], [write], [nonatomic], [weak]

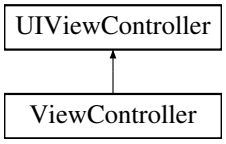
textview for showing data

The documentation for this category was generated from the following file:

- InPace/InPace/SyncDataViewController.m

4.15 ViewController Class Reference

Inheritance diagram for ViewController:



The documentation for this class was generated from the following file:

- InPace/InPace/ViewController.h

4.16 ViewController() Category Reference

4.16.1 Detailed Description

ViewController for home page

The documentation for this category was generated from the following file:

- InPace/InPace/ViewController.m

Chapter 5

File Documentation

5.1 InPace/InPace/BTSendRec.h File Reference

Bluetooth send and receive functionality.

```
#import <Foundation/Foundation.h>
#import <CoreBluetooth/CoreBluetooth.h>
#import <math.h>
#import <time.h>
#import "Database.h"
```

Classes

- class BTSendRec

  Class responsible for doing the data transmission to the connected peripheral.

Macros

- #define BLE_UUID [CBUUID UUIDWithString: @"713D0000-503E-4C75-BA94-3148F18D941E"]
- #define RX_UUID [CBUUID UUIDWithString: @"713D0002-503E-4C75-BA94-3148F18D941E"]
- #define TX_UUID [CBUUID UUIDWithString: @"713D0003-503E-4C75-BA94-3148F18D941E"]
- #define RWT_BLE_SERVICE_CHANGED_STATUS_NOTIFICATION @"stuff goes here"
- #define RADIUS 6371000
- #define PI 3.1415926
- #define to_rad(x) ((double) x * PI / 180)

5.1.1 Detailed Description

Bluetooth send and receive functionality. This file defines the necessary functions and macros to handle reading data from the InPace wristband, parsing it, submitting it to the database, reading values out of the database, and sending the necessary data to the wristband.

5.1.2 Macro Definition Documentation

5.1.2.1 #define BLE_UUID [CBUUID UUIDWithString: @"713D0000-503E-4C75-BA94-3148F18D941E"]

This macro expands to a CBUUID object that represents the UUID of the Bluetooth shield used in the InPace wristband.

5.1.2.2 #define PI 3.1415926

This macro expands to the value of pi.

5.1.2.3 #define RADIUS 6371000

This macro expands to the mean radius of the Earth in meters.

5.1.2.4 #define RWT_BLE_SERVICE_CHANGED_STATUS_NOTIFICATION @"stuff goes here"

No idea what this does or why it's here, honestly...

5.1.2.5 #define RX_UUID [CBUUID UUIDWithString: @"713D0002-503E-4C75-BA94-3148F18D941E"]

This macro expands to a CBUUID object that represents the UUID of the Read characteristic on the Bluetooth shield.

5.1.2.6 #define to_rad(*x*) ((double) x * PI / 180)

This macro takes the value x and converts it into radians.

5.1.2.7 #define TX_UUID [CBUUID UUIDWithString: @"713D0003-503E-4C75-BA94-3148F18D941E"]

This macro expands to a CBUUID object that represents the UUID of the Write characteristic on the Bluetooth shield.

Index

AppDelegate, 7
AppDelegate(), 7
arrRouteCoord
    RouteInfoViewController, 13
arrRoutesInfo
    RoutesViewController(), 14

BLE_UUID
    BTSendRec.h, 17
BTDiscover, 7
    bt_periph, 9
    centralManager:didConnectPeripheral:, 8
    centralManager:didDisconnectPeripheral:error:, 8
    centralManager:didDiscoverPeripheral:advertisement-
        Data:RSSI:, 8
    centralManagerDidUpdateState:, 9
    manager, 9
    scanForWristband, 9
    wristband, 9
BTSendRec, 9
    distance:secondPoint:, 10
    time:endTime:, 10
    writeFile:toDatabase:, 10
BTSendRec(), 11
BTSendRec.h
    BLE_UUID, 17
    PI, 17
    RADIUS, 18
    RX_UUID, 18
    TX_UUID, 18
    to_rad, 18
bt_periph
    BTDiscover, 9

centralManager:didConnectPeripheral:
    BTDiscover, 8
centralManager:didDisconnectPeripheral:error:
    BTDiscover, 8
centralManager:didDiscoverPeripheral:advertisement-
        Data:RSSI:
    BTDiscover, 8
centralManagerDidUpdateState:
    BTDiscover, 9
columns
    Database, 12

Database, 11
    columns, 12
    file, 12
    init_dbfile:, 11
    last_rowid, 12
    query:, 11
    results, 12
dbManager
    RouteInfoViewController, 13
    RoutesViewController(), 14
discover
    SyncDataViewController(), 16
distance:secondPoint:
    BTSendRec, 10

file
    Database, 12

InPace/InPace/BTSendRec.h, 17
init_dbfile:
    Database, 11

last_rowid
    Database, 12
loadData
    RoutesViewController(), 14
loadRouteData
    RouteInfoViewController, 13

manager
    BTDiscover, 9
mapView
    RouteInfoViewController, 13

PI
    BTSendRec.h, 17

query:
    Database, 11

RADIUS
    BTSendRec.h, 18
RX_UUID
    BTSendRec.h, 18
results
    Database, 12
routeID
    RouteInfoViewController, 13
    RoutesViewController(), 15
RouteInfoViewController, 12
    arrRouteCoord, 13
    dbManager, 13
    loadRouteData, 13
    mapView, 13
    routeID, 13

RouteInfoViewController(), 13
RoutesViewController, 14
RoutesViewController(), 14
    arrRoutesInfo, 14
    dbManager, 14
    loadData, 14
    routeID, 15
    tblRoutes, 15

scanForWristband
    BTDiscover, 9
SettingsViewController, 15
SettingsViewController(), 15
SyncDataViewController, 15
SyncDataViewController(), 16
    discover, 16
    testTextView, 16

TX_UUID
    BTSendRec.h, 18
tblRoutes
    RoutesViewController(), 15
testTextView
    SyncDataViewController(), 16
time:endTime:
    BTSendRec, 10
to_rad
    BTSendRec.h, 18

ViewController, 16
ViewController(), 16

wristband
    BTDiscover, 9
writeFile:toDatabase:
    BTSendRec, 10