**USE CASE 1:**

title Authenticate

note over User interface,Authenticate: User prompts UID & PW and validate

User interface->+Authenticate: validate(UID, PW)

Authenticate->+SecurityDB: login(UID, PW)

SecurityDB-->-Authenticate: Return

Authenticate->-User interface: User authenticated

note over User interface,Authenticate: User quits the activity

User interface->+Authenticate: quit()

Authenticate->Authenticate: Kill

**USE CASE 2:**

title Check garbage bin status

note over User interface, MainActivity: User enters MainActivity

participant CheckStatus

MainActivity-->+ArduinoConnection: Service starts

ArduinoConnection->ArduinoConnection: fetchData()

ArduinoConnection-->+GarbageHandler: Data

deactivate ArduinoConnection

GarbageHandler->GarbageHandler: checkData()

GarbageHandler->-GarbageHandler: setBin()

note over User interface, MainActivity: User chooses Check Status

User interface->MainActivity: checkStatus()

MainActivity-->+CheckStatus:startActivity(intent)

CheckStatus->+GarbageHandler: getBin(id)

GarbageHandler-->-CheckStatus: Return

CheckStatus-->-User interface: Display the list of garbage bins

note over User interface, CheckStatus: User quits the activity

User interface->+CheckStatus: quit()

CheckStatus->-CheckStatus: Kill

**USE CASE 3:**

title Check position of the trash containers

note over User interface, MainActivity: User is on the main activity

participant MapsActivity

MainActivity-->+ArduinoConnection: Service starts

ArduinoConnection->ArduinoConnection: fetchData()

ArduinoConnection-->+GarbageHandler: Data

deactivate ArduinoConnection

GarbageHandler->GarbageHandler: checkData()

GarbageHandler->-GarbageHandler: setBin()

note over User interface, MapsActivity: User chooses "Check map"

User interface->MainActivity: viewMap()

MainActivity-->+MapsActivity:startActivity(intent)

MapsActivity->MapsActivity: buildGoogleApiClient()

MapsActivity->+GarbageHandler: getBin(id)

GarbageHandler-->-MapsActivity: Return

MapsActivity->MapsActivity: onLocationChanged()

MapsActivity-->-User interface: Display the map with garbage bins

note over User interface, MapsActivity: User quits the activity

User interface->+MapsActivity: quit()

MapsActivity->-MapsActivity: Kill

**USE CASE 4:**

title See details of a specific garbage container

note over User interface,CheckStatus

User is on CheckStatus acitivity

User clicks on a item of the list

end note

participant MapsActivity

User interface->CheckStatus: onListItemClick(ListView l, View v, int position, long id)

CheckStatus-->+SeeDetails:startActivity(intent)

SeeDetails-->-User interface: Display details of the garbage bin selected

note over User interface,MapsActivity

User is on MapsActivity

User clicks on a marker

end note

User interface->MapsActivity:setOnInfoWindowClickListener(marker)

MapsActivity-->+SeeDetails:startActivity(intent)

SeeDetails-->-User interface: Display details of the garbage bin selected

note over User interface,SeeDetails: User quits the activity

User interface->+SeeDetails: quit()

SeeDetails->-SeeDetails: Kill

**USE CASE 5:**

title Find the best garbage collection route

note over User interface, SeeDetails

User is on the SeeDetails

User chooses to see the garbage bin on the map

end note

User interface->SeeDetails: ViewOnMap()

SeeDetails-->+MapsActivity:StartActivity(intent)

MapsActivity->MapsActivity: BuildGoogleApiClient()

MapsActivity->MapsActivity: OnLocationChanged()

MapsActivity-->-User interface: Display the map with the garbage bin selected

note over User interface, MapsActivity: User clicks on "Go" to see the route

User interface->+MapsActivity: SendRequest()

MapsActivity->+DirectionFinder: DirectionFinder.execute()

DirectionFinder->DirectionFinder: CreateUrl()

DirectionFinder->DirectionFinder: DownloadRawData()

DirectionFinder->DirectionFinder: ParseJSon()

DirectionFinder->DirectionFinder: DecodePolyline()

DirectionFinder-->-MapsActivity: Return

MapsActivity->MapsActivity: onDirectionFinderSuccess(route)

MapsActivity-->-User interface: Display the route

note over User interface, MapsActivity: User quits the activity

User interface->+MapsActivity: Quit()

MapsActivity->-MapsActivity: Kill

**USE CASE 6:**

title Update the occupancy rate of a garbage container

note over User interface, SeeDetails

User is on the details activity

User clicks on "Empty"

end note

User interface->+SeeDetails: empty()

SeeDetails->+GarbageHandler: setBin(id)

GarbageHandler-->-SeeDetails: Return

SeeDetails-->-User interface: Display new information

note over User interface, SeeDetails: User quits the activity

User interface->+SeeDetails: quit()

SeeDetails->SeeDetails: Kill