Lockmate User Manual

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Introduction

This User Manual will guide the process of hardware setup as well as general usage of the system. As mentioned in the README, you will need the following hardware:

- Arduino board

- Servo motor

- Arduino AC adapter

- USB-B to USB-A cable

- 2x Android devices, 1 of which has USB-OTG support

Setting up the REST API (optional)

If using with the default gmm-server hosted at UTM, skip to the next section "Setting up the Arduino Hardware" found in the next page.

The files referenced in this section can be found inside *src/lockmate-rest-api/*

Import the SQL database file *lockmate.sql* which will build the database structure of the system consisting of two tables.

Upload the files *add_key.php*, *add_record.php*, *delete_key.php*, *get_keys.php*, *get_records.php* and *update_key.php* to your webserver with PHP and MySQL installed.

Ensure that the database settings in each file correspond to your database setup (e.g SQL login details and database name).

Note that using your own server for the REST API would also mean having to recompile the Lockmate Scanner and Manager Android applications. You will only need to change the values of variables containing the address of the REST API found in the Java classes inside the projects.

Setting up the Arduino Hardware

Connect the servo motor's 5V and GND lines and then connect the signal pin to the 5th analog pin, A5. Figure 1 shows how as an example, the 5V and GND lines wired directly into the Arduino (for simplicity) as well as the signal pin into pin A5.
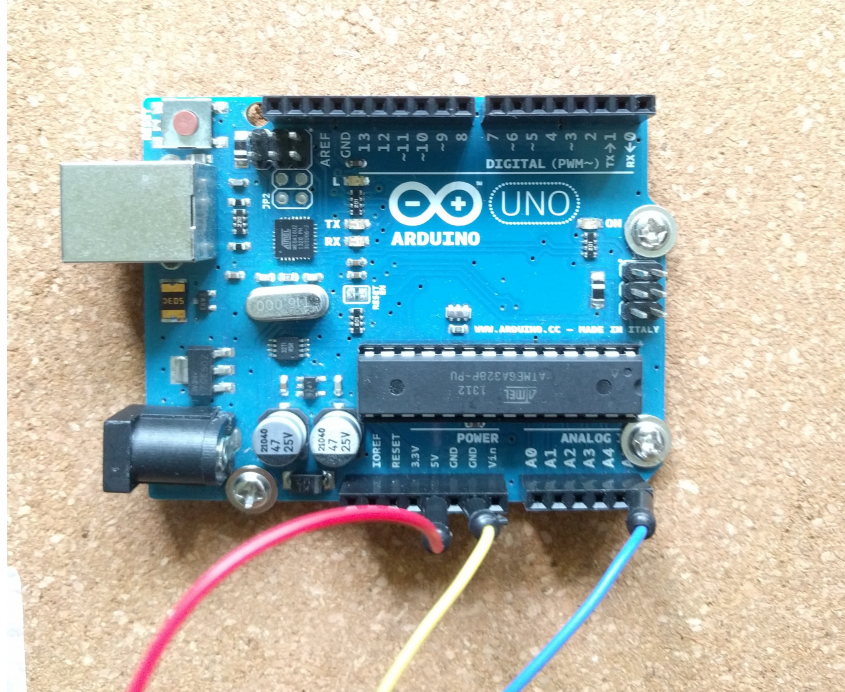

Figure 1: Example setup

After that, you can then connect the AC adapter and the Arduino hardware is now ready to be used with the Lockmate Scanner.

Android Device 1: Lockmate Scanner

With your first Android device that **HAS** USB-OTG support, install the Lockmate Scanner application. Afterwards, connect your Arduino board (that is already connected to the servo motor and powered on via an AC adapter) to the device.

Android will then prompt you to open the Lockmate application upon connecting and granting permissions. Tap 'Yes' to both. If it has not launched already, launch the Lockmate Scanner application.
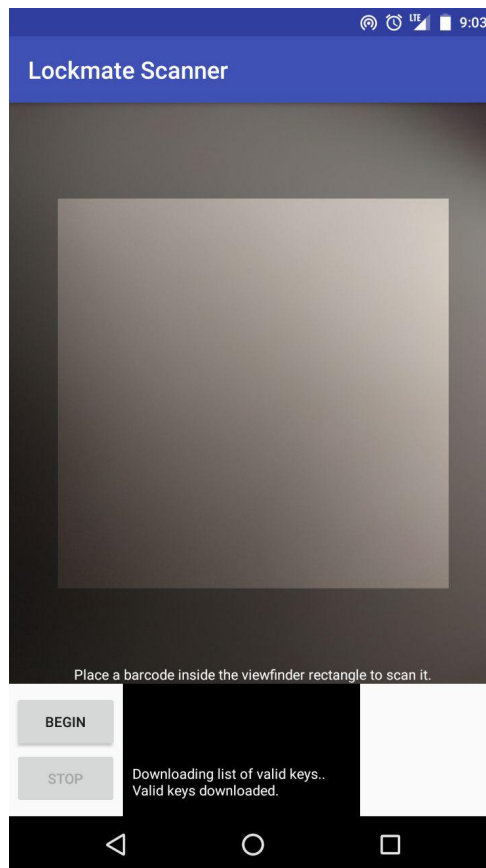
Figure 2: Lockmate Scanner

Now we need to make the serial connection to the Arduino board by clicking on the "BEGIN" button. Once this is done, the device is now ready to scan QR codes and to validate them. If a valid code is scanned, you should see the servo motor rotate.

For safe removal of the Lockmate Scanner device from the Arduino board it is recommended to press the "STOP" button before ejecting.

Android Device 2: Lockmate Manager

For the Lockmate Manager, you only need a device that runs Android 5.0 Lollipop or later and has an internet connection (via mobile data or WiFi).

After installing the application, you can manage the list of valid QR codes and users present in the database. From this application you are also able to view an access log or history of people that have scanned their QR codes.