

# Cloud Sound System

## Back-end Description and Phases

The back-end of the project is responsible for connecting the other two parts “Frontend and the Hardware”, though an API, it also contains the Database of the project, so to build the back-end we need to do the following :

### For the Database :

1. Design the project's database schema. “On Paper”
2. Refine the database to reach the 2<sup>nd</sup> or 3<sup>rd</sup> normal form.
3. Build the database using MySQL.
4. Fill the database with dummy data.
5. Test the possible queries of the database.
6. Fix any problems in the database.
7. Release the final version of the database as an SQL file.

### For the API :

1. Build the structure of the API. “On Paper”.
2. Arrange with the Fron-end and the Hardware to know what they need.
3. Refine the structure to fit the needs of the project.
4. Build the JSON structure of the data that will flow through the API.
5. Implement the API using PHP native or Laravel.
6. Test the API with any data on the server to make sure its working.
7. Connect the API with the Database.
8. Fill the database with some dummy data.
9. Test the API with the data from the database.
10. Document the whole API in a clear documentation.

### For the Server :

1. Build a Linux server.
2. Install LAMP.
3. Build the database using the SQL file.
4. Clone the back-end code to the server.
5. Clone the front-end code to the server.

### For the Integration :

1. Send the API documentation to the other two parts of the project.
2. Test the API using the Front-End.
3. Test the API using the Hardware.
4. Add any new functionality needed from the API.
5. Refine the code of the API to make it faster, more secure.