

# **Technical Documentation**

**Inspark**

Group #14

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## **Frontend**

The website is built with a combination of HTML, JavaScript, PHP, and MySQL. The p5.js, qrcode.min.js, jquery, and Sha256 JavaScript libraries are used to enrich the functionality of the site and enable many of its features. When sending sensitive information to the server, the information is first encrypted client-side using an algorithm based on the Sha256 cryptographic hash and the XOR encryption scheme. Only then is the information passed to the server through an AJAX call to a PHP script, which interacts with a remotely hosted MySQL server. When retrieving sensitive information, the PHP request comes first, prompting the server to send the encrypted information to the client, which then decrypts the information. To increase security, almost all PHP requests must be accompanied by a randomly generated 256-character session key unique to every login session. To keep the virtual map updated, a script uses AJAX requests to fetch updated information about the parking lot every second or so. p5.js is used to render the map's features into an HTML5 canvas element.

## **Backend**

To run backend software, please run it on a windows OS with java 8 runtime environment. Other requirement can be found in Code folder.