**Functional Requirements**

1. LTA personnel must login through the login page in order to access the features of the system.
   1. The system should send an ‘unauthorised access’ email to the respective user’s email if failed login exceeds 5 attempts.
      1. The system should log record of the unauthorised accesses to the database.
   2. LTA personnel can change current password by first entering his old password, typing his new password and confirming his new password.
   3. LTA personnel can reset his given password.
      1. An email will be sent to the LTA personnel’s email account containing his new password that was randomly generated.
2. Public user and LTA personnel can access the accident management system.
   1. Public user can report accidents.
      1. User can upload an image related to the accident.
      2. System must be able to retrieve user’s current location via GPS and set it as the default reported accident location.
      3. The default location of the accident can be changed by the user by moving a location pin on the map interface.
      4. System automatically inputs the current date and time as the default date and time for the accident which can be changed by user before reporting it.
      5. Location of reported accident can be viewed from a map interface represented by a red location pin.
   2. LTA personnel can approve or reject public user’s accident reports through the system.
      1. If the accident report is approved, an overturned car triangular symbol is added to the real-time map of all accidents in Singapore and the status of the accident report is changed to approved.
      2. If the accident report is rejected, the accident is removed from the list of pending public user accident reports.
   3. LTA personnel can remove resolved accidents from the list of existing accidents.
   4. LTA personnel can edit information of reported accidents.
   5. Public user and LTA personnel can view a real-time map containing location of known accidents and the location of speed and traffic red light cameras in Singapore.
      1. The system will display the full Singapore map initially.
         1. Public user can tap the zoom in and out buttons, double tap or pinch to zoom in or out on the map on a smartphone or touch screen device.
         2. Public user can scroll the mouse wheel or click the zoom in and out buttons on a computer.
         3. There should be a button to reset the map to the original full size.
         4. There should be a button to zoom in on their current location.
         5. There should be a button to refresh and update the map.
      2. Accidents are represented by overturned car triangular symbols.
         1. Clicking an overturned car triangular symbol will display the picture, date, time and description of the accident submitted by the public user.
      3. Installed cameras are displayed as speed camera symbols or traffic camera symbols.
      4. LTA personnel can input suggestions for new cameras on the map with status as pending or installed.
         1. LTA personnel can change status of suggested cameras from pending to installed.
         2. LTA personnel can delete suggested or installed cameras.
         3. Pending cameras are displayed on the map only if logged in as LTA personnel.
            1. Pending cameras are represented by dark blue flag symbols.
      5. Public user and LTA personnel can filter accidents, traffic light cameras and speed cameras.
         1. LTA personnel have the additional option to filter pending cameras.
      6. The map has a legend displaying what each symbol (accident - overturned car triangular symbol, installed camera – speed camera symbol or traffic camera symbol, and pending camera – dark blue flag symbol) represents.
      7. Symbols located on the map can be filtered by specifying the time range.
3. The database can summarise accident data and generate summarised accident reports.
   1. Accident reports can be summarised by time, location and cause.

**Non-Functional Requirements**

Usability

- Map reset should occur within 1 second.

- The map must fully load within 5 seconds on a 4G network.

- The accident report must be submitted within 5 seconds on a 4G network.

- Zoom on current location should occur within 3 seconds.

- The map update should occur within 3 seconds.

- The database of existing accidents and pending accident reports should be hosted online.

Reliability:

- LTA personnel’s password should be encrypted for security.

Performance:

- The system should be able to verify the LTA personnel’s account within 5 seconds.

- The accident should be added to real-time map within 5 seconds.

Supportability:

- The application should be able to accept images in .gif, .png and .jpg format.

- The database must be replaceable with any commercial product supporting standard SQL queries.

- The system must support web browsing.