User Requirements (Based on Project Brief)

* Take Good Pictures:
  + Capture clear, detailed pictures.
  + Work well in different lighting (bright, dim, etc.).
* Recognize Objects:
  + Accurately identify specific things (products, people).
  + Learn to recognize new things over time.
  + Make sure the camera is good at recognizing simple objects.
  + Find and name objects in the picture in real-time.
* Send Alerts:
  + Let users set up alerts for certain objects or events.
  + Send alerts in different ways (email, text, app).
* Manage Data:
  + Work with existing data systems (if any are used).
  + Make it easy to find and use the data.
  + Send data to a central computer (server) using MQTT for later use.
* Be Easy to Use:
  + Have a simple interface for setting up and watching the camera.
  + Show detected objects and alerts clearly.
  + Use a dashboard to display the information to the user
* Allow Remote Access:
  + Let users see the camera feed and data from anywhere.
  + Allow users to change camera settings remotely.
* Do Specific Tasks:
  + Smart Alarm: See if it's possible to use the camera as a smart alarm.
  + People Counter: Count how many people go into a place.
  + Water Monitoring: Watch for water being dumped into rivers.
  + Sewer Monitoring: Watch a sewer valve remotely.
  + Monitor Water Companies: to monitor the times and durations that they discharge any untreated sewage into the river network.
* Use the Right Model:
  + Validate the performance of the camera for simple object recognition. This will include some academic content in the field of machine learning and computer vision.
  + Consider YOLO for recognizing objects.
* Label Data:
  + Use tools like LabelImg to label the images and draw boxes around the objects of interest.

User Requirements (Prioritized)

1. **High Importance:**
   1. Take Good Pictures:
      * Capture clear, detailed pictures.
      * Work well in different lighting (bright, dim, etc.).
   2. Recognize Objects:
      * Accurately identify specific things (products, people).
      * Learn to recognize new things over time.
      * Make sure the camera is good at recognizing simple objects.
      * Find and name objects in the picture in real-time.
   3. Send Alerts:
      * Let users set up alerts for certain objects or events.
      * Send alerts in different ways (email, text, app).
   4. Be Easy to Use:
      * Have a simple interface for setting up and watching the camera.
      * Show detected objects and alerts clearly.
      * Use a dashboard to display the information to the user
   5. Allow Remote Access:
      * Let users see the camera feed and data from anywhere.
      * Allow users to change camera settings remotely.
   6. Use the Right Model:
      * Validate the performance of the camera for simple object recognition. This will include some academic content in the field of machine learning and computer vision.
      * Consider YOLO for recognizing objects.
2. **Medium Importance:**
   1. Manage Data:
      * Work with existing data systems (if any are used).
      * Make it easy to find and use the data.
      * Send data to a central computer (server) using MQTT for later use.
   2. Do Specific Tasks:
      * Smart Alarm: See if it's possible to use the camera as a smart alarm.
      * People Counter: Count how many people go into a place.
      * Water Monitoring: Watch for water being dumped into rivers.
      * Sewer Monitoring: Watch a sewer valve remotely.
      * Monitor Water Companies: to monitor the times and durations that they discharge any untreated sewage into the river network.
   3. Label Data:
      * Use tools like LabelImg to label the images and draw boxes around the objects of interest.