# Using Mobile Technology to Detect Concussion

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Our goal is to create an application that can detect concussion on an individual by tracking their eye movement and using the data captured to compare against base line images of a concussed and non-concussed person.

By using a mobile device camera, we want to track the movement of the individual's pupil by one of two methods (yet to be decided);

1. Having the patient follow a dot on screen that draws a pattern. After capturing and mapping this movement we will then have our software compare the mapped image against base line images for both concussed and non-concussed patients, and have the software advise the operator of its diagnosis.
2. Measuring the speed of pupil dilation when exposed to a flash of light. We will also map this data and compare against base line examples.

With each capture we will be adding relevant information to a secure database that is creating a data set which could be used in further research into concussion/brain trauma in both the technological and medical fields.

**Research**

- Medical concussions.
- Real time object tracking.
- Data analysis.
- Machine learning.
- GDPR – relating to personal information storage.
- Average consumer mobile phone specs.

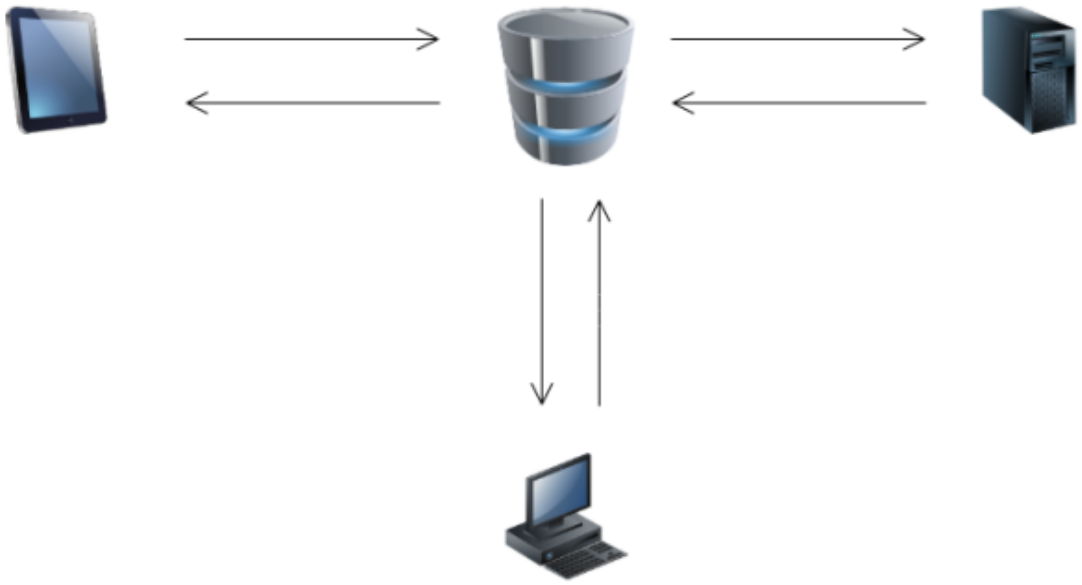
**Technology**

- Mobile application.
- Secure database.
- An algorithm to compare captured movement.

**Mobile Application:**
- Front End Client
- Captures Image Data
- Provides Early Diagnosis

**Database:**
- Back End Server
- Secure Data Storage
- Stores Patient Data
- Stores Statistics

**Processing Server:**
- Back End Processing
- Data Analytics
- Machine Learning



**PC Application:**
- Review Patient Data
- Generate Statistics