UNIVERSITEIT VAN PRETORIA
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Quant Solutions:

Electronic ID Verification

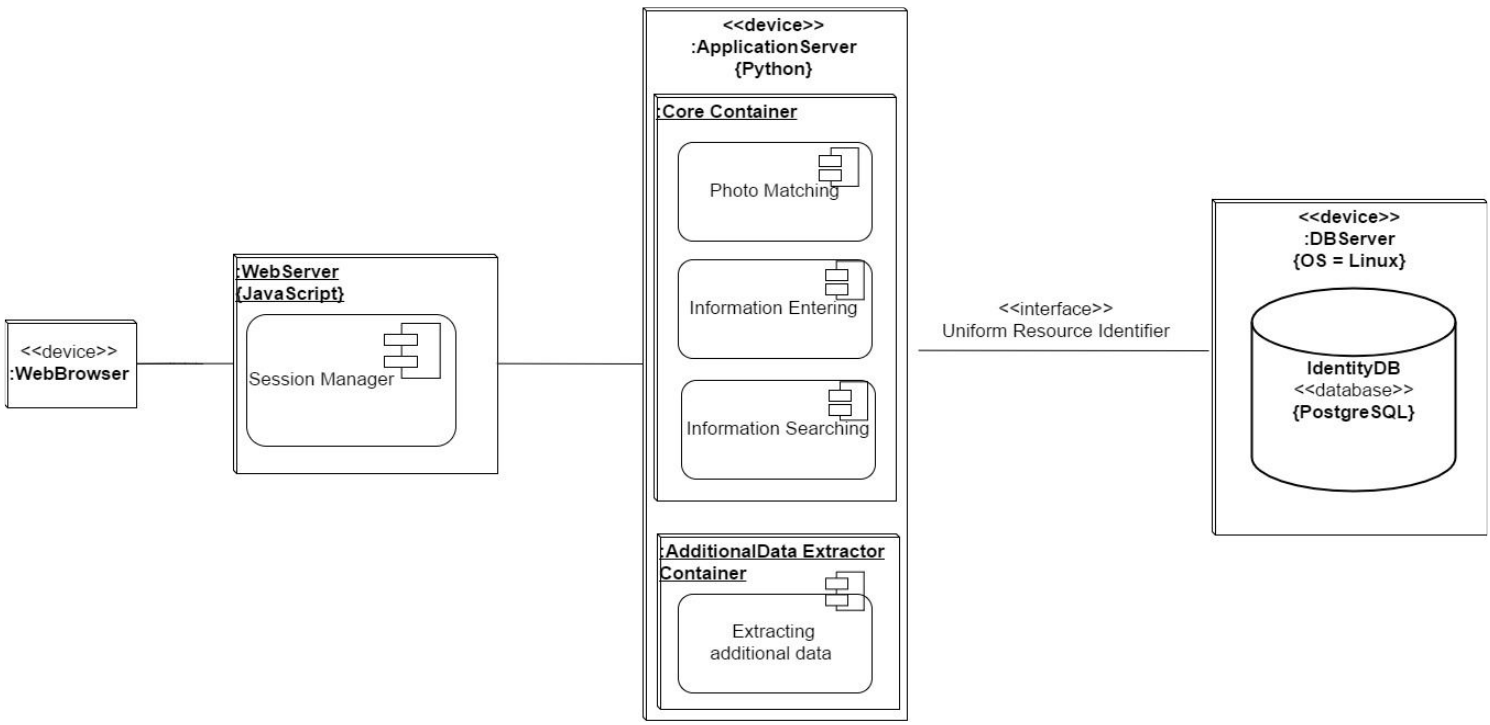
Team: #include

Team members:
Cian Steenkamp
Boikanyo Modiko
Siyabonga Magubane
Bernard van Tonder
Robert Trankle

1. High-Level Description

The core part to be developed is a modular library that takes a photo, name and ID number of any person as input and compares the input photo to the photos in the ID or driver's license photo database. The photo comparison functionality will use computer vision to output a percentage match. The other inputs are also searched for in the database. A percentage match of the inputs compared to the database will be output.

We will also develop a minimal web-based interface using this library that is both mobile-friendly and PC desktop-friendly. The web-based interface will allow a photo to be uploaded or captured using a phone or PC's camera. Other relevant detail can also be inputted. The output will be displayed as percentage values and graphs.



Technologies to be used:

Technology	Reason for use
HTML5	It is the standard for front-end web design. It is quick and easy to use.
JavaScript	JavaScript is easy, quick to develop with and performs well using Google Chrome's V8 engine.
CSS	It is the standard for front-end aesthetical customisation.
Python	Python will be used as the back-end language as requested. This will make our code fit better into Quant Solution's Python code library.
PostgreSQL	It is requested by Quant Solutions. It is to easier integrate into the current system. It is an easy relational-DBMS that we are comfortable using.
Computer vision library: VLFeat / OpenCV	These are popular high-performance computer vision libraries for visual matching. They will ensure accuracy and reliability.

2. Development Methodology

We will use a **Feature Driven Development (FDD)** approach which consists of 6 phases of which the first 3 are done only once and the last three are iterative.

Phase1: Develop Overall Model

Before developing the overall model our team will meet with Quant Solutions's contact person. We are planning on having at least 2 team meetings per week and a meeting with Quant Solutions's contact person at least once every 2 weeks. We realise that the development of every successful application starts with understanding the application from the client's point of view. We will therefore periodically inform the client of the project's progress challenges, and solutions for those challenges.

Phase2: Build a Feature List

Team #include will then create a feature list representing the functions to be delivered by the system. This list will be reviewed by Quant Solutions.

Phase3: Plan by Feature

After Quant Solution's contact person gave approval of the feature list we will use our Waffle board to guide our incremental development and deployment of features according to their priorities and dependencies. A project schedule and milestones will be developed in this phase. Major features to be developed will also be assigned to specific team members during this phase.

Phases 4-6: Design by Feature, Build by Feature, Deployment

These phases are iterative, during which features are developed, implemented, reviewed, tested, and deployed.

The artefacts of the project will include:

1) Requirements and design documentation
2) Implementation code and working prototype
3) Automated tests, test cases and test reports
4) User manual

3. Team #include:

Cian Steenkamp:

I am studying BSc Computer Science and enjoy learning new technologies although most of my experience has been in the following languages:

- HTML
- Bootstrap
- CSS
- MEAN stack
- PHP

I will be the team leader and the main contact person for this project. As team leader I will organise team and client meetings. I will monitor project progress to ensure that we complete the project on time. Team #include will carefully track project development and I will report to the client throughout the development process to ensure that we meet the client's expectations.

Robert Trankle:

BSc Computer Science(3rd year). I am skilled in most languages and willing to learn more. Currently expanding my knowledge in Computer Networks, developing my understanding of the different network layers, and the protocols that reside within them.

I am skilled in the following languages, needed for the project:

- HTML
- JavaScript(Foundation of MEAN Stack)
- PHP
- CSS
- AJAX

Bernard van Tonder:

I am studying BSc Computer Science. I am in my final year of the course at the University of Pretoria.

I have a very high standard for the work that I do. I have been passionate about computer science since I was 16. My passion drives me to deliver optimal work. I work not just for myself, but for society.

I have experience with:

- C++
- Java
- HTML
- CSS
- JavaScript
- SQL
- Assembly
- Bash

I have developed Android applications, LAMP stack web applications, Bash utilities and various projects utilising computational intelligence. I have industry experience from working at the Meraka Institute at the CSIR for several weeks during the vacations.

Siyabonga Magubane:

I am a final year student at the University of Pretoria currently studying BSc Information Technology Information and Knowledge Systems. I am a innovative, passionate student who always works towards perfection. I am hard worker by heart and am willing to make justifiable sacrifice of my time and effort in order to ensure optimal success in completion of the project.

I am skilled in the following programming languages and tools that might be useful for the successful completion of the project.

- LAMP stack
- Javascript
- MEAN stack
- AJAX
- JSON
- C++
- Java

Boikanyo Modiko:

A young, determined individual with a great passion for technology and innovation.

I am currently pursuing my third year of studies in BSc IT at the University of Pretoria. I enjoy solving problems through technological innovation and constantly challenge myself to greater heights.

I am familiar with a number of different technologies and programming languages including the following:

- Java
- C++
- SQL
- HTML
- CSS
- PHP
- JavaScript