



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

PROJECT TENDER

Project: VizARD(Augmented Reality Data
Visualization)

Client: EPI-USE Labs

Team: IMPAKD

TEAM MEMBERS

Diana Obo

Kudzai Muranga

Priscilla Madigoe

Sandile Khumalo

DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF PRETORIA

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1 Meet the Team Members

Priscilla Madigoe



• Interests

My interests include Computer Programming, Electronics, Computer Graphics, Robotics, travelling, photography, music, sports and reading novels.

• Technical Skills

- Computer Programming with sound knowledge of Java, C/C++, MatLab, WebGL and Web-related programming languages.
- Complex Problem-Solving using scientific and mathematical principles.
- System Analysis to determine how a computer software should behave in set conditions.
- Quality Control Analysis to evaluate the performance and quality of computer software.

• Past Experience

The Software Engineering module had a preparatory project called the Mini Project that was created to give students a real-world experience of software development. I took part in the project and I have learnt the process of software development, team work and different technologies used to develop computer software. I have participated in this year's Standard Bank IT Challenge.

• Non-Technical Skills

My non-technical skills include critical thinking, reading comprehension, writing, effective listening, social perceptiveness and active learning.

- **Reason for Interest in the Project**

I would like to expand my knowledge on Computer Graphics and Augmented Reality as I am currently enrolled in an elementary Computer Graphics course. This project will help me gain insight on how to apply Computer Graphics for Game Development.

Diana Obo



• Interests

My interests are travelling, game development, Web development and Anime. I also enjoy learning about new technologies and watching a lot of discovery channels and documentaries.

• Technical Skills

- I have sound knowledge of Java, C++, HTML, CSS, Javascript, C# and MatLab
- Mobile development (Android Studio)
- 3DS MAX.
- Ember.js and Handlebar.js

• Past Experience

- I participated in this year's Standard Bank IT Challenge.
- I did an internship at a small company named Lepsta where I did Web development.

• Non-Technical Skills

- Willingness to learn
- Team player
- Organised
- Diligent
- Reliable

• Reason for Interest in the Project

Since I am interested in Game Development, Anime and Ive worked with 3DS Max, this project will expand my knowledge in Augmented Reality and Computer Graphics.

Kudzai Muranga



- **Interests**

I am an avid reader. I love fantasy novels the most. I like to keep myself up to date with the current affairs of the world. I am also interested in learning anything new that concerns science, technology and business.

- **Technical Skills**

- I have sound knowledge of Java, C++, HTML, CSS, Javascript, C# and mobile development
- Artificial Intelligence experience.
- Business Management knowledge
- Project Management

- **Past Experience**

- I have participated in the Standard Bank IT Challenge.
- I have been invited to the Hello Group Open Day where I participated in a coding challenge using Java.

- **Non-Technical Skills**

- I am interested and open to learning new things
- Disciplined
- Organised
- Critical Thinking

- **Reason for Interest in the Project**

I am interested in this project because I feel that it would allow me to use programming abilities extensively and teach me new and exciting skills.

Sandile Khumalo



- **Interests**

My interest are coding, reading on new and exciting, technologies and watching and reading about football. I also enjoy weightlifting.

- **Technical Skills**

- I am comfortable and have experience coding in these languages; C++, Java, C#, PHP, HTMLl, JavaScript and Bash. I also have done 64 bit assembler language and I have experience in MINIX.

- **Past Experience**

I have done a project in my software development class that is similar. It incorporates most of the technologies and frameworks used in the work place when developing big projects.

- **Non-Technical Skills**

I am a hard working student. I am dedicated and I believe if there is a will, the is a way. This is especially true as a developer because most of the solutions are there and someone has done it before. It's a matter of good research and good understanding of the task at hand. I am willing to learn from every experience.

- **Reason for Interest in the Project**

I find this project challenging and exciting. There is a lot to learn from it. It would be great to work on the Augmented Reality feature and expand my knowledge.

2 Project Execution

• Development Methodology

For this project, the following development methodology will be used:

- Name:
Scrum
- What is Scrum?
Scrum is a lightweight management framework with broad applicability for managing & controlling iterative & incremental projects of all types (Takeuchi & Nonaka, 1999).
- Why did we choose to use it?
Because of all the potential additions that might occur at the different stages of development for this project, we have decided that Scrum is the best suited development methodology to use.

• Keeping the Epi-Use Informed

To keep the client informed about the project, we are going to use the following technologies and strategies:

- During the client meetings where we are going to discuss all aspects of the project.
- Send email to set up appointments.
- Use an application called Slack for general queries and updates.

• Ideas to Solve Technical Problems for VizARD

- We will add an API that will help us represent textual data into statistical data.
- We will have another API that will help us configure all the different types of graphical representations.
- An AI will be devised to automate the creation of 3D models in WebGL. This AI will be optimised for mobile platforms.
- A Neural Network will be used to train the AI that will be used to be able to select an appropriate graph for given data.

- **Possible Technologies to be Used**

- Character Recognition Library: Tesseract for mobile platforms
- Augmented Reality SDK: Vuforia
- Unit Testing: JUnit Framework
- We will use Maven for dependency management, plugin framework and support for modularization for projects.

- **What Epi-Use Labs will Receive**

In addition to the project deliverables, the Epi-Use Labs will receive source code that will run on several mobile platforms.