Computer Science | Final Applied Project

The Use Of Voice Interface Systems To Augment Change Collection During Buying And Selling In Ashesi University

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OUTLINE

Introduction

Related Work

Design and Implementation

Key Components

Prototype Demo

Testing and Results

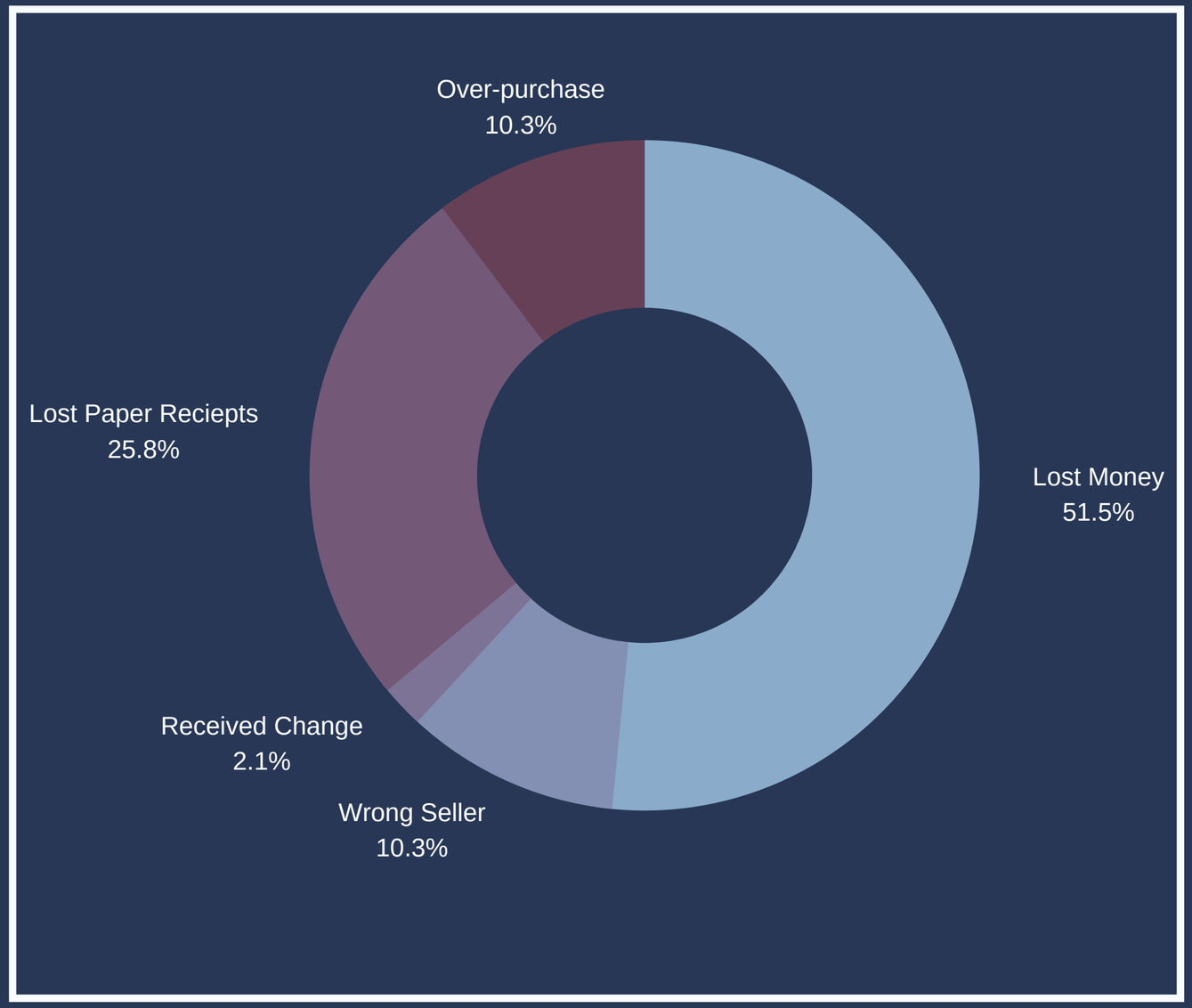
Future Work

Conclusion

INTRODUCTION

What is the Problem?

- Difficulty in getting change
- Time is wasted
- Students are forced to overspend
- Money is lost



Research Study with 30 Ashesi Students as Participants

PROPOSED SOLUTION

OK NSESA

The goal is for buyers' change to be converted into electronic currency which can be used for other purchases to avoid change loss.

RELATED WORK

Live Speaker Identification

- Noise Model
- Speaker Recognition [1]

Command-Based SRS

- Speech Technology
- Intuitive Commands [2]

E-Commerce VUI's

- Voice commands
- Users with Impairments [3]

KEY COMPONENTS

TECHNOLOGIES AND COMPONENTS

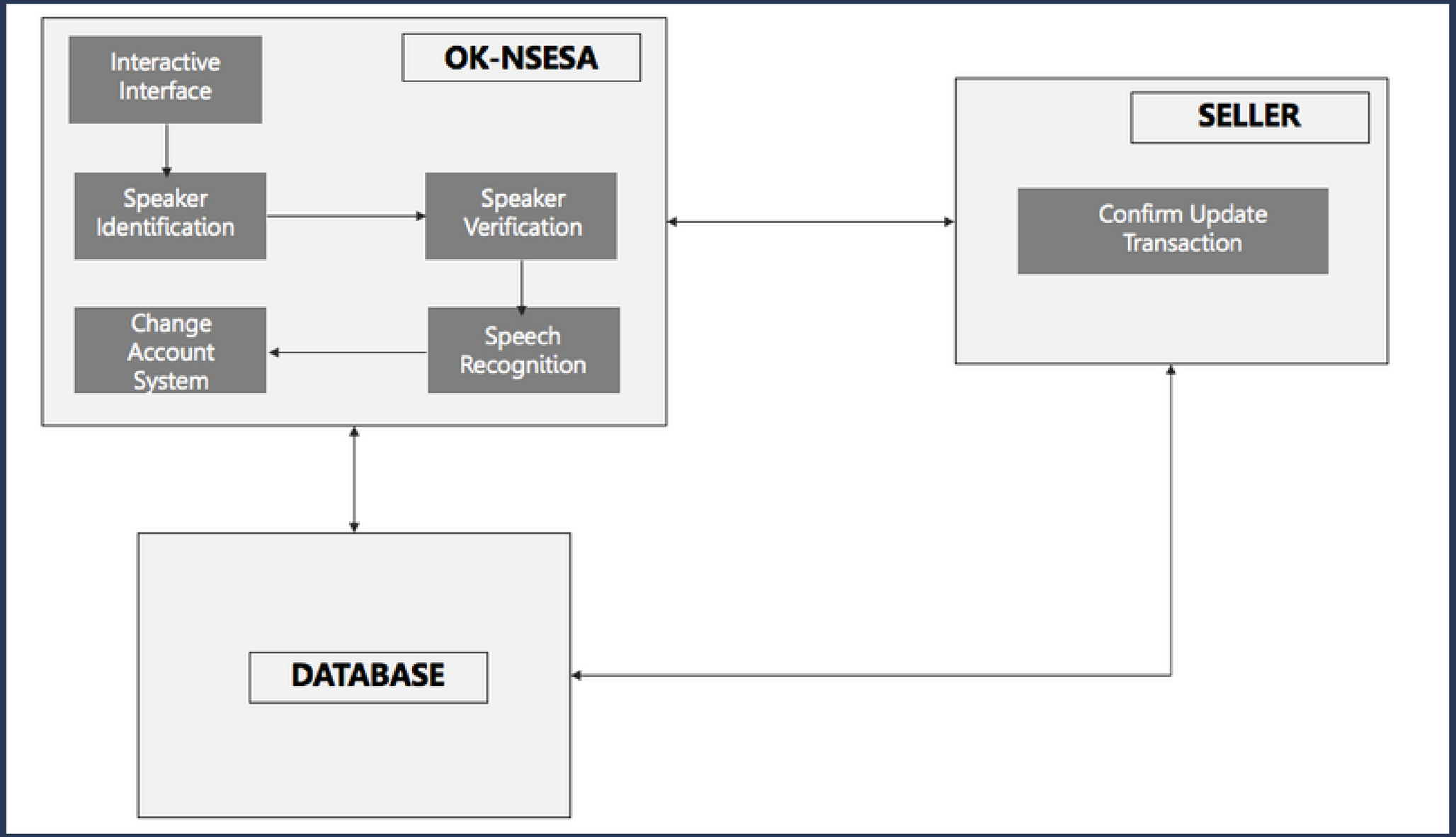
Port Audio

Microsoft Speaker Recognition

Google Speech Recognition

Command Extraction

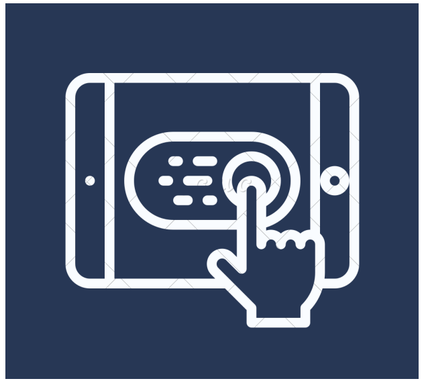
HIGH-LEVEL ARCHITECTURE



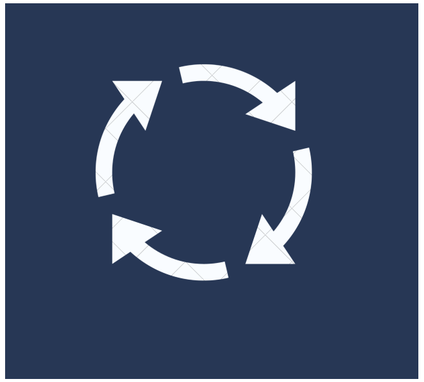
DEMO

TESTING & RESULTS

Unit Testing



Usability Testing



End-to-End Testing

End-to-End Test Results

85%

WITHOUT-NOISE SETTING

67.5%

WITH-NOISE SETTING

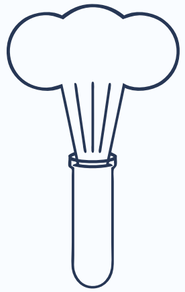
Major Concerns

WRONG FIGURE UPDATES

STUDENTS WHO MAY TWEAK VOICES TO USE OTHERS' ACCOUNTS

FUTURE WORK

EXPANDING THE OK NSESA SYSTEM



Rigorous Testing and Experiments

More Flexible Commands & Seller's Confirmation

Connecting to other Monetary Accounts

In Conclusion...

A Natural Language Processing System called Ok Nsesa, that uses voice features and commands to allow users accumulate change amount electronically

References

[1] Gerald Friedland and Oriol Vinyals. 2008. Live Speaker Identification in Conversations.

[2] S. Gamm, R. Haeb-Umbach, and D. Langmann. 1996. Findings with the design of a command-based speech interface for a voice mail system.

[3] M. S. Kandhari, F. Zulkemine, and H. Isah. 2018. A Voice Controlled E-Commerce Web Application.