

# VillageApps - A platform to educate underprivileged communities in their mother tongue

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## Abstract

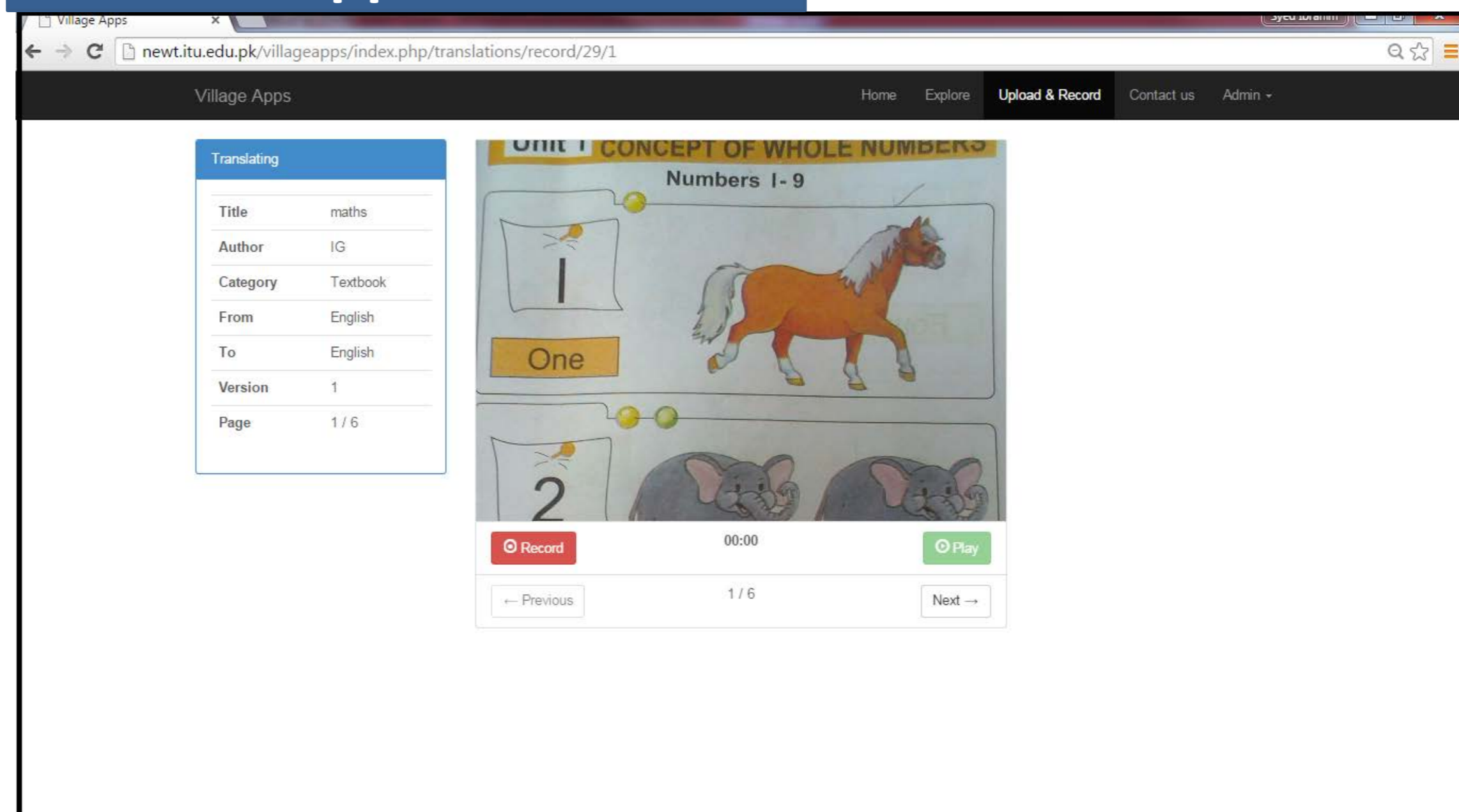
Illiteracy is one of the biggest development challenges, especially in the developing regions. There are 785M adult illiterates in the world; one in every five people has little or no basic reading skills. Illiteracy poses the following challenges: It limits the ability to understand essential information, it increases unemployment, poverty and it has a negative impact on health.

In this study, we present VillageApps - a platform to educate underprivileged communities in their mother tongue. The paper details the platform, its functionality, and its initial evaluation on a group of 30 school-aged children. Our platform consists of a web and a mobile application; the web application provides an interface to upload content and record its page by page audio translation; the mobile application provides an interface to view each page and simultaneously listen to its audio translation.

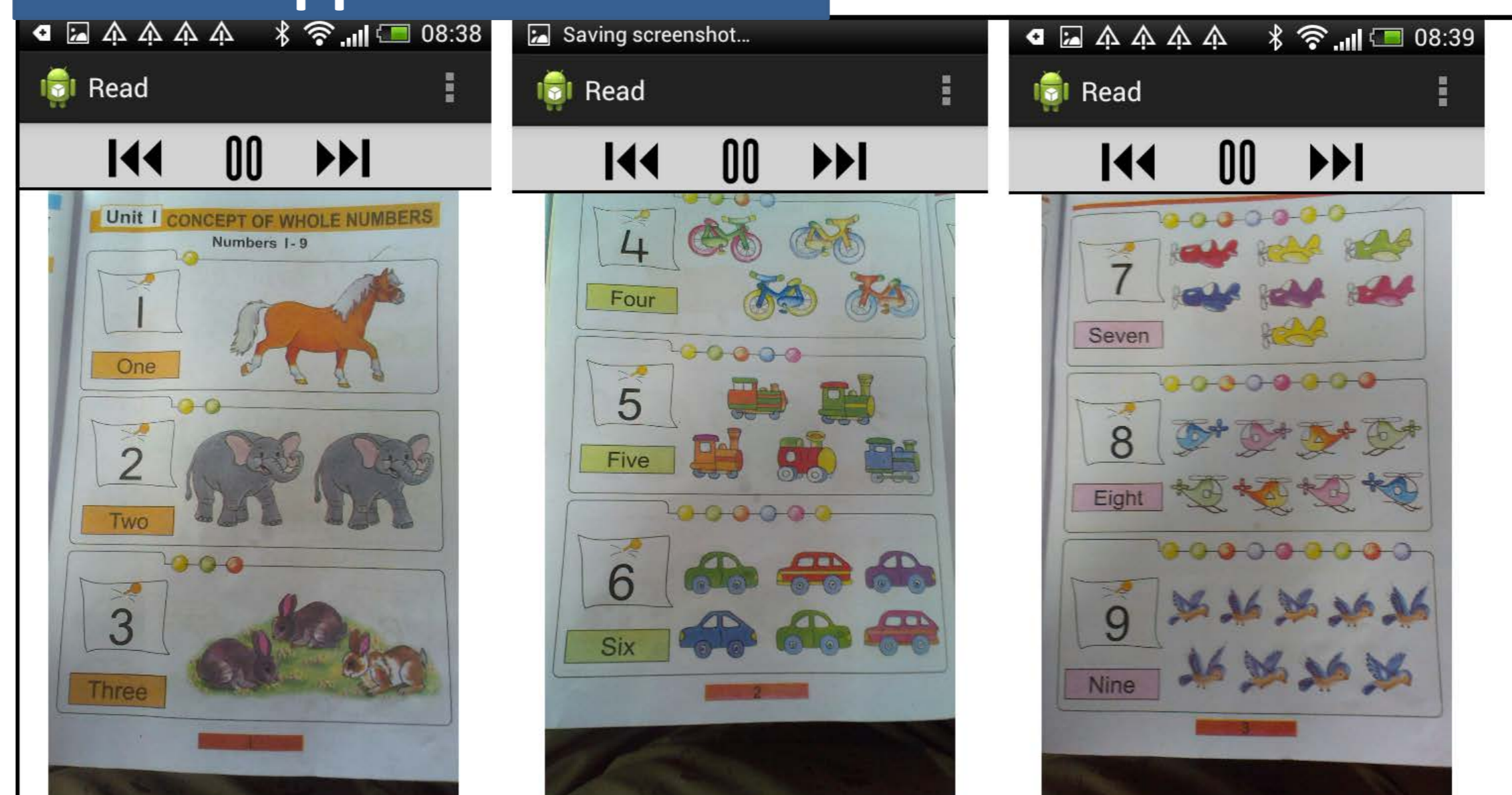
## Introduction

Pakistan's 5.5 million school-aged children do not attend school. In the province of Baluchistan, about half of the children in the fifth grade are unable to subtract two numbers and read a sentence in English. Access to information in rural areas is sparse, and there is an acute shortage of primary-school teachers [9]. The main problems hindering educational activities in rural areas are: poor readability, difficulty in learning a new language, and textual illiteracy. The availability of reading material in a learner's mother tongue can improve reading skills. Information and communication technologies can bridge the knowledge divide by enabling people to learn in their Mother tongue. VillageApps is a platform that provides reading-illiterates access to educational content in their mother tongue.

## Web App Interface



## Mobile App Interface



## Initial Evaluation & Results

| Questions#        | Before (%) | After (%) | Improvement (%) | Question# | Before (%) | After (%) | Improvement (%) | Question# | Before (%) | After (%) | Improvement (%) |
|-------------------|------------|-----------|-----------------|-----------|------------|-----------|-----------------|-----------|------------|-----------|-----------------|
| 1-5 (Ascending)   |            |           |                 | 1         | 50         | 63        | 13              | 1         | 7          | 45        | 38              |
| 5-10 (Descending) |            |           |                 | 2         | 45         | 45        | 0               | 2         | 26         | 63        | 37              |
| 1                 | 10         | 36        | 26              | 3         | 10         | 36        | 26              | 3         | 10         | 36        | 26              |
| 2                 | 27         | 36        | 9               | 4         | 18         | 36        | 18              | 4         | 20         | 45        | 25              |
| 3                 | 27         | 36        | 9               | 5         | 30         | 53        | 23              | 5         | 4          | 45        | 41              |
| 4                 | 27         | 27        | 0               | 6         | 33         | 43        | 13              | 6         | 10         | 36        | 26              |
| 5                 | 20         | 45        | 25              | 7         | 10         | 20        | 10              | 7         | 26         | 45        | 19              |
| 6                 | 10         | 26        | 16              | 8         | 13         | 26        | 13              | 8         | 10         | 26        | 16              |
| 7                 | 20         | 26        | 6               | 9         | 7          | 16        | 9               | 9         | 7          | 36        | 29              |
| 8                 | 10         | 20        | 10              | 10        | 20         | 63        | 43              | 10        | 20         | 63        | 43              |
| 9                 | 26         | 36        | 10              |           |            |           |                 |           |            |           |                 |
| 10                | 26         | 26        | 0               |           |            |           |                 |           |            |           |                 |

## Conclusions & Future work

In this study, we examined the potential of VillageApps, a framework to disseminate information to the underprivileged communities in their mother tongue. We conducted an initial field test on a group of 30 volunteers. We noticed that after taking the VillageApps basic maths tutorials, more participants were able to perform better in counting, comparison and sorting tests. We are working with the government of Pakistan to create subject lessons for class 1-6 with the help of VillageApps framework. Government already has the content for class 6-10, which is currently being taught in 256 school all across Pakistan (content accessible at: <http://elearn.punjab.gov.pk/>)

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