Solution

A system that provides fast, reliable and accurate reporting by leveraging ubiquitous SMS technology.

1. SMS messages are sent to report cold chain status.
2. Messages are parsed, and responses are generated.
3. Authorized managers can moderate report activity.

Architecture

SIM's message processing scheme groups code into modules by their behavior instead of by their operation. There also exist modules that define the syntax, but not behavior, of operations. Modules in SIM can register interest in an operation, making it easy to reconfigure how operations are acted upon. Our hope is this modular design will minimize the effort needed to use SIM in another country, or even for a purpose other than vaccine management.

Future Work

- Connect the existing framework to the DHIS2 database for the Laos deployment.
- Send SMS reminders to health workers on a regular basis to ensure timely reporting of data.
- Use location information to allow health workers in the field or patients to request information about the stock levels at nearby facilities.

Implementation

For each operation

Django Signal

Parse Operation

Receiver

Receiver

Receiver

If no errors

Django Signal

Receiver

Receiver

Receiver

Responder

Spam Filter

Identify Operations

Parse Operation

Syntax Stage

Semantic Stage

Commit Stage

Respond Stage

User's Web Browser

For each operation

Filter Stage

Gateway Phone(s)

HTTP

REST

SMS

User's Mobile Phone

HTTP

REST

SMS Immunization Manager (SIM) (RapidSMS, Apache)

Authorized managers can moderate report activity.

User's Web Browser

SMS

User's Mobile Phone

Django ORM

Metadata & Permissions DB

Cold Chain DB

At the University of Washington

In Deployment Country

http://courses.cs.washington.edu/courses/cse481k/14sp/