

Loxley Public Company Ltd and Pendata



Key Facts

Case Data capture solution using wet ink natural input in Thai Language within a clinical environment

Client Loxley Public Company Ltd - South East Asian Technology and Commerce Comp.

Tech Anoto LP2 and Formidable 4.0 used in conjunction with mobile clients and USB data transfer

When Pre planning commenced in Q3 2015, with trial deployed onsite at start of Q4. Trial ran for 16 weeks across two phases



The technical brief:

Deliver a data capture solution, supporting Thai Language, that enables clinical staff to spend less time on admin, and more time looking after patients

Pendata clinical data capture

Bangkok Thailand is home to around 7 million people and is a Regional leader in expatriate and domestic provision of surgical procedures and healthcare. Loxley Public Company Ltd, a Bangkok Headquartered technology and commerce business, provides hospital management solutions to many of these providers. Pendata was approached to devise a trial for a Loxley Hospital Client who is providing health care at world's best practice and compliance standards. The Client treats both inpatients, and outpatients at their central Bangkok private facility. Within the Occupational Therapy Department, a dedicated and caring staff wanted a simple and more effective method to capture patient presentation assessment data, while significantly reducing the time required spent manually transferring captured data into back end CRM databases.



Dr. Patapon Rojanakul of Loxley Public Company chats with the Clinical Project Team at the client site

“One key challenge was the validation of the unique Thai Language Lexicon – used in a medical context!”

After working in close consultation with Pendata, Loxley presented their Client with a Digital Writing Solution, that enable staff to spend less time on admin, and more time looking after patients. The solution works by converting handwritten input using an Anoto Digital Pen onto paper pre printed with Anoto dot pattern.

The forms capture initial patient assessments and are a critical part of our admissions process. The solution converted this process into instantly usable data. Historically, before analyzing the input, data needed to be rekeyed manually into back office systems. This takes time and is not an effective use of our OT specialist resources. Perhaps the most challenging step in this was optimizing

the process to handle Thai Language lexicon. The sentence above “Do you speak English” demonstrates in part this complexity:

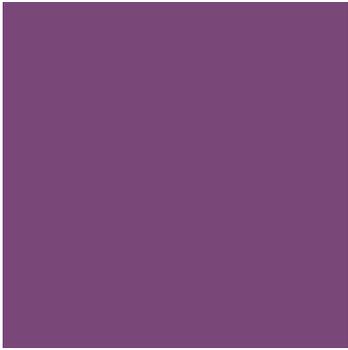
พูดอังกฤษได้ไหม

With its unique three-line character structure the MyScript text recognition software needed to work across a range of input both *above and below* the standard – ‘middle’ character line.

In addition to technical challenges, the push back from staff was also an obvious risk. While excited by the concept, principal considerations involved how would the staff respond to this technology, without creating a secondary problem around time and

resources on IT training for medical staff. Also, within a medical environment, much of the data input is language agnostic (between Thai, English and Roman lexicon) - along with hand drawn notations and medical terminology for patient assessments.

In response the trial was as much about showing *how* the Anoto pen could improve process, as it was about *optimizing* the software that worked with the captured data. Pendata Asia and Loxley worked closely to develop a heavily customized application, using custom resources of expected input. This resource grew dynamically with each application submission over the course of the trial.



Collaborative Design + *Continual optimization*

Dr. Rojanakul is the project leader at Loxley Public Company. He coordinated the flow of information between the Client and Pendata. With over 170 input fields, and a range of input variables this was a complex process. “The Pendata Team worked with us on deploying the trial from the ground up.

First we needed to adapt the legacy form so that staff could work with it intuitively - then we needed to work on understanding what data the Team would commonly use in an assessment. Staff workshops (in conjunction with Pendata) were set up to train both Client and Loxley support teams in how to work with the solution. And finally we needed a method to evaluate the success of the solution in capturing data”.



Complex validation delivered at an impressive 92% accuracy!

After some initial product awareness and configuration issues, the benefits to users became event very soon into phase one.

Initially the pen took a bit of getting used to. But once the Client understood how the process worked it was very easy to work with. The immediate benefit of substantial reduction in data entry was an obvious deliverable. Project intangibles were also discovered, such as enabling a 100% focus on the patient while capturing assessment data. Previously trialed instant input methods (such as direct to PC or device) often shifted the staff focus to the technology rather than the person they are consulting. This was particularly evident when the website capturing the online form crashed or busy staff were distracted from the process and forgot to save data input!

Project deliverables were reported on a daily basis, by Loxley project Team. To keep this process accountable Dr. Rojanakul devised an assessment matrix which evaluated input across 24 data capture zones. The key feature was the ability to isolate the under performing input zones and devise optimization responses. These ranged from custom resources added by Pendata, to user training provided by Loxley.

The ranking matrix operated on a points system attributed to each of the 170- fields on the target form. Interpreted text ranked a higher score, and recognised input (such as tick boxes and Roman

Numeral scores) attributed half points. Over the course of the pilot, the objective of the project Team was to demonstrate that through a partnership of technical, Client Service and peer support, the project could deliver data capture accuracy at levels which compare to highly accurate OCR technology, with all the added benefits of instant data visibility, integrity and mobility.

The overall effect of this team effort was a validation rating of over 90% over the course of the trial. Given the complexity (and 80% benchmark target) of the project this was a remarkable result.

This landmark proof of concept / pilot trial demonstrated conclusively that the Anoto Live Platform adequately handles complex language lexicon in operational deployments.

As importantly, the process showed how Pendata working in close consultation with a specialist enterprise team, was able to deliver a heavily customized solution that perfectly suited the operational requirements of the Client brief.



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