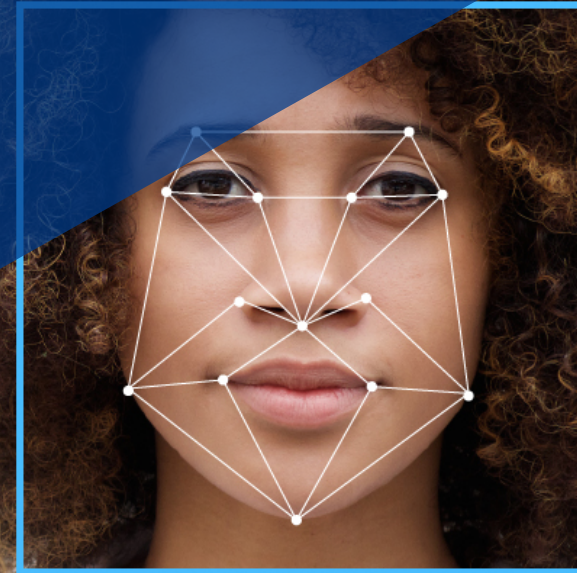
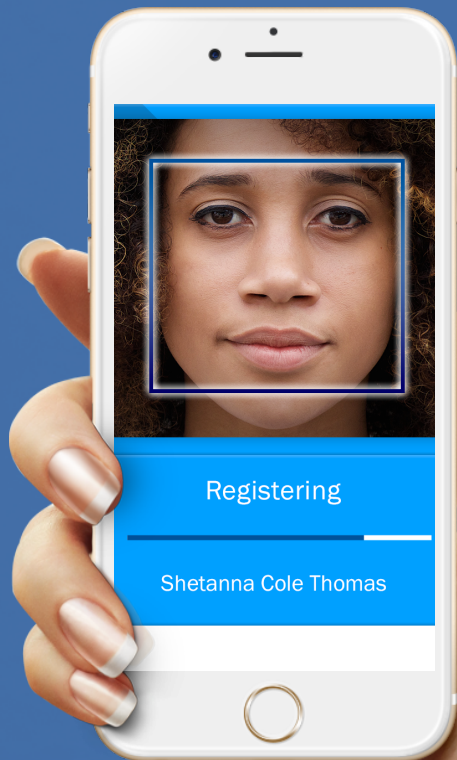


Digital Identification & Authentication (I&A) Through Face Recognition Technology

**Accessing and
Distributing
Electronically Delivered
State of Title Certificates**



applied
recognition

Partners

- Applied Recognition
 - Based in Toronto Applied Recognition has developed face recognition for the authentication of people, their photo ID and their digitally signed transaction all within in the consumer control over their privacy and security.
- Blockchain Acuity
 - Vancouver based Blockchain Acuity is a consultancy and full stack development firm that builds custom solutions on a variety of different platforms such as Bitcoin, Ethereum, Ripple and HyperLedger
- Yongle Technologies
 - Vancouver based Yongle developed the first platform to allow a completely paperless new home sale from start to finish. Through the Yongle's innovations for new home sales management, developers, their marketing agencies and clients can realize the ease and convenience of paperless locationless home purchasing
- Sourabh Siddharth
 - Vancouver based Sourabh is a blockchain enthusiast, Software Engineer- Application Management and Services. Actively seeking research/internship/job opportunities as a developer on blockchain platform.

Blockchain – beauty and the beast

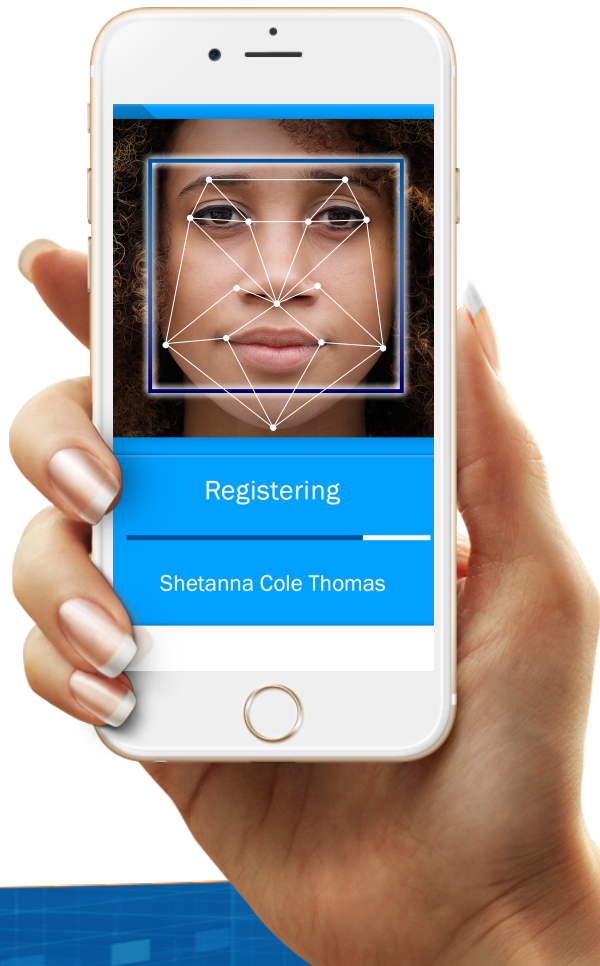
The Beauty of Blockchain

- Bitcoin has proven the efficiency for accessing, trading, verifying, and trusting the ability to move money securely
- Bitcoin has proven that Blockchain is a technology that cannot be broken into or hacked unlike manual systems today
- Bitcoin has eliminated the middle man and returned power and control to the consumer to exchange money the way we used to with paper and coins.
- Blockchain based Title Certificates would bring back control to the consumer to own and control their land ownership
- Blockchain technology eliminates centralized record keeping and the underlying inefficiency, cost and weakness of mistakes, tampering and fraud.
- Blockchain is perfect for Electronically Delivered State of Title Certificates and removing friction from real estate transactions

The Problem with Blockchain

- Bitcoin has proven that without strong identity and authentication that fraud will occur
- Easy to impersonate or take control and steal another person's Bitcoin because of anonymity and lack of identity and authentication
- Without visibility and identity authentication
 - How can third-parties trust this?
 - How can third-parties digitally verify a customer's identity?
 - How can participants be connected to streamline the process of sharing and using and validating?
 - How can access be controlled or permissioned by a property owner?

Face Recognition is the best for Digital Identity and Authentication



Face Rec Superior to other I&A modalities :

- ⦿ Facial picture authentication established as citizen norm worldwide (passport, drivers' license, etc.)
- ⦿ Innate identity and recognition to humans
- ⦿ Universal and Unique Identifier
- ⦿ Cameras are ubiquitous
- ⦿ Contains permanent information and meaning
- ⦿ Best liveness and anti-spoofing technology
- ⦿ Proof stops Spoofing

- **100% privately and securely on the phone**
- **No centralized collection of biometric**
- **Compliant with privacy laws**
 - **North America and Europe**
- **100% Canadian**

Photo ID Authentication

Identities Require authentication
face and photo ID automate authentication

- ⦿ ID Holder
 - ⦿ Selfie Authentication
 - ⦿ Face liveness and anti-Spoofing
- ⦿ Photo ID authentication
 - ⦿ Passport Chip with chip Validation
 - ⦿ Driver's License Authentication
- ⦿ AML/KYC Fintrac compliant
- ⦿ Required for
 - ⦿ Real Estate
 - ⦿ Banks
 - ⦿ Lawyers

Cognition Superior to other IA modalities
because:



Document Signing – Face Based e-Witness

- ⦿ A Pen in Every Phone / Wallet
- ⦿ Government Photo ID Capture
- ⦿ Remote Authentication – no witness required
- ⦿ Sign anywhere, any time, any document
- ⦿ Using a phone
- ⦿ Within minutes... Sign a contract



Document Signature

Document checksum:
6931c5894efb15ac917233886b015052

Date:
October 21, 2017 at 5:29:33 PM EDT

Client ID:
c39c78477f0bc90cc31Me8ca9234660

Face

ID Card

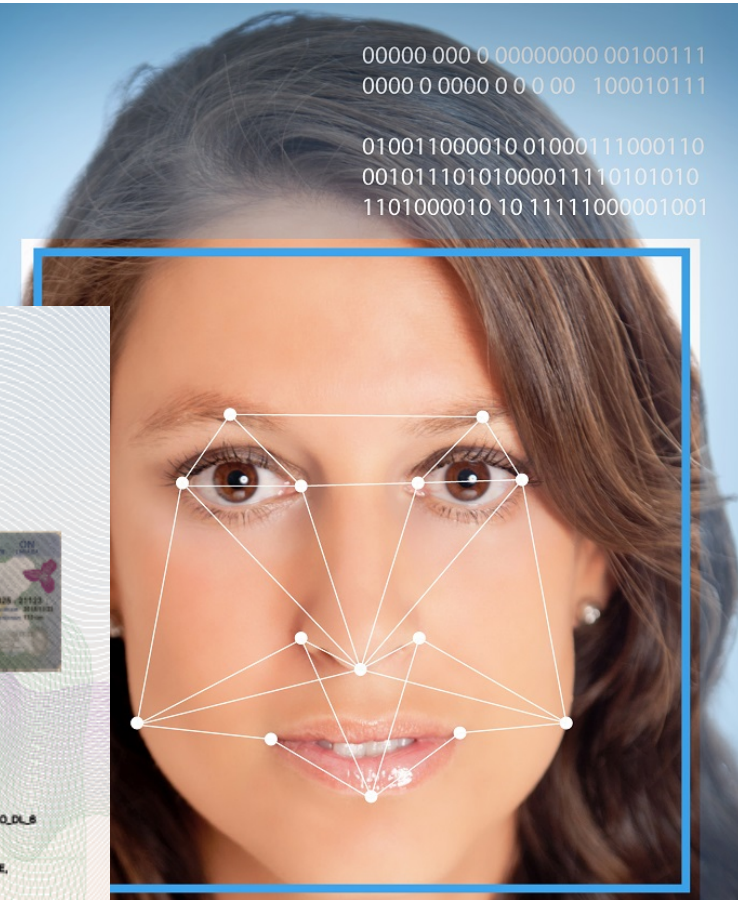
Date added: Oct 10, 2017
First name: DONALD
Middle name: C
Last name: WAUGH
Date of birth: 11-23-1962
Eye color: NONE
Height: 176 cm
Sex: M
Auth result: Passed
Licence: W08761732521123
Document type: MOB_ONTARIO_DL_S
Name detected: ON
Date of issue: 10-21-2018
Date of expiry: 11-23-2018
Address: 332 CREEK PATH AVE,
City: OAKVILLE
Post code: L6L6X1
Jurisdiction: ON
Country: Canada
Licence class: G

LAST WILL AND TESTAMENT OF DONALD CRAIG WAUGH

I, Donald Craig Waugh, presently of Oakville, Ontario, declare that this is my Last Will and Testament.

PRELIMINARY DECLARATIONS
Prior Wills and Codicils

1. I revoke all prior Wills and Codicils.



00000 000 0 00000000 00100111
0000 0 0000 0 0 0 00 100010111

010011000010 01000111000110
00101110101000011110101010
1101000010 10 11111000001001

IDENTITY PROTECTION

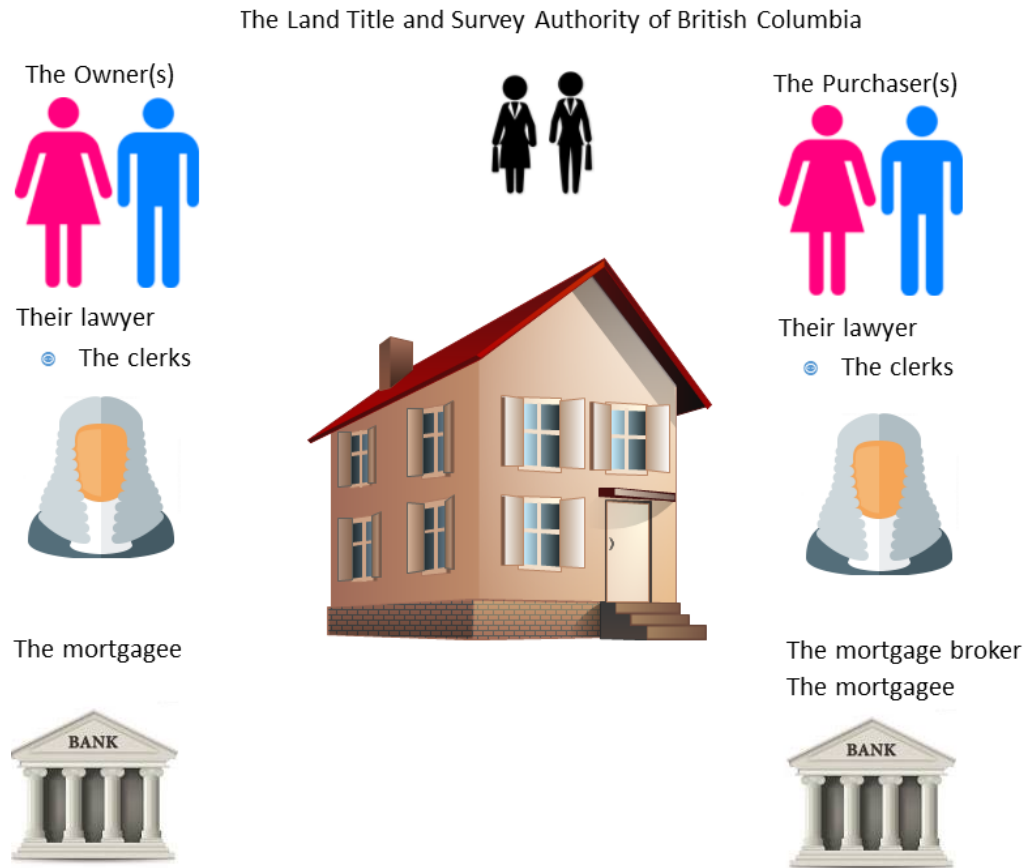
Name:

Password:

00000 000 0 00000000 00100111
0000 0 0000 0 0 0 00 100010111

010011000010 01000111000110
00101110101000011110101010

The Identities than need to be Authenticated

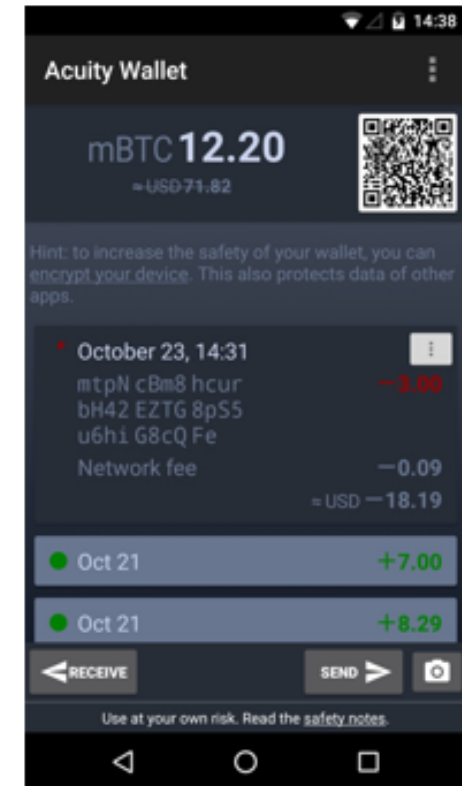
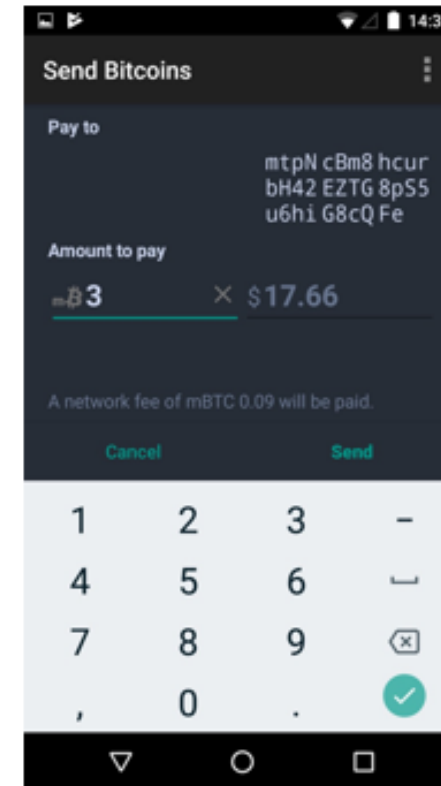
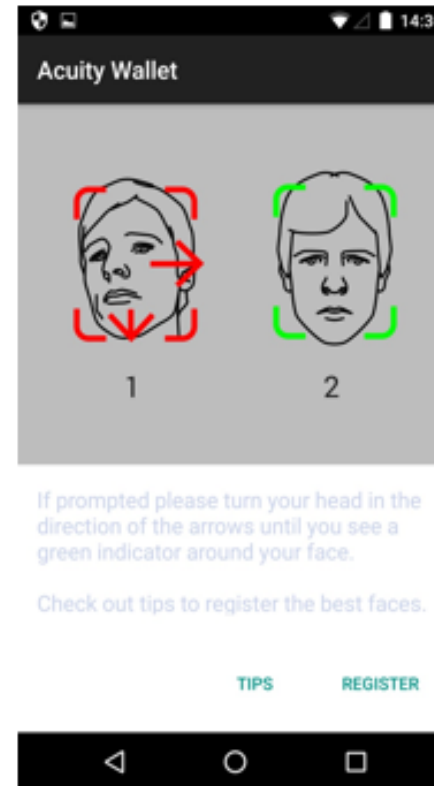


- Each Participant need only register once.
- AML/KYC Compliant
- Trusted identity
- Trust authentication
- Trust Private Signing Key

Acuity Wallet with Face Authentication



- No password weakness
- Face authentication
 - Unlocks wallet
 - Authorizes transactions
 - Face photo audit trail
- Higher value transactions require certainty
- Stops Hackers and Fraudsters
- The Wallet Stores the Title Certificate



TLA'AMIN NATION

YOUR FILE NUMBER:
00001234.0153

LAND TITLE DISTRICT:(City), BRITISH COLUMBIA

CERTIFICATE NO: STC00234567 **TITLE NO:** BN1345A

THIS IS TO CERTIFY THAT AT hh:mm ON dd/mm/yyyy, THE STATE OF THE TITLE TO THE LAND DESCRIBED HEREIN IS AS STATED AND IS SUBJECT TO THE NOTATIONS APPEARING BELOW THIS CERTIFICATE IS TO BE READ SUBJECT TO THE PROVISIONS OF SECTION 23(2) OF THE LAND TITLE ACT (R.S.B.C. 1996 CHAPTER 250) AND MAY BE AFFECTED BY SECTIONS 50 AND 55-58 OF THE LAND ACT (R.S.B.C. 1996 CHAPTER 245).

.....
REGISTRAR

APPLICATION FOR REGISTRATION RECEIVED ON: dd/mm/yyyy
ENTERED ON: dd/mm/yyyy

REGISTERED OWNER IN FEE SIMPLE:
JOHN DOE, MEMBER OF TLA'AMIN NATION
(address)

TAXATION AUTHORITY:
TLA'AMIN PROPERTY TAXATION AUTHORITY

DESCRIPTION OF LAND:
PARCEL IDENTIFIER: 124-124-124
LOT 7 DISTRICT LOT 174 GROUP 2 VANCOUVER DISTRICT PLAN 42529

LEGAL NOTATIONS:

THIS LAND FORMS PART OF THE TREATY LANDS OF THE TLA'AMIN NATION

THIS LAND IS SUBJECT TO CONDITIONS, PROVISOES, RESTRICTIONS, INCLUDING RESTRICTIONS ON ALIENATION, EXCEPTIONS AND RESERVATIONS, INCLUDING ROYALTIES, AS SET OUT IN SECTION OF THE LAND ACT OF THE TLA'AMIN NATION

SECTION 28 OF SCHEDULE 1 OF THE LAND TITLE ACT APPLIES AND A TLA'AMIN CERTIFICATE OF TRANSFER MUST ACCOMPANY ANY APPLICATION TO REGISTER TITLE – RESTRICTS DEALINGS

CHARGES, LIENS AND INTERESTS:

NATURE OF CHARGE

CHARGE NUMBER	DATE	TIME
---------------	------	------

STATUTORY RIGHT OF WAY
BB234567 dd/mm/yyyy hh:mm
REGISTERED OWNER OF CHARGE:
TLA'AMIN NATION
BB234567
REMARKS: INTER ALIA

Duplicate Indefeasible Title: NONE OUTSTANDING

TRANSFERS: NONE

PENDING APPLICATIONS: NONE



- ⦿ PIPEDA Digital Signature compliant
- ⦿ User authenticated to the Wallet with the face
- ⦿ The Face releases their private key
- ⦿ Optionally embed the users
 - ⦿ Face
 - ⦿ Photo ID
- ⦿ In the digitally signed contract
- ⦿ Will stop fraud
- ⦿ Best of evidence – better than ink on paper
- ⦿ More convenient

Private Wallet - Key Recovery

Two Levels of Recovery

1. Key Owner is alive and available

- Embedded feature of Acuity Blockchain Wallet
- All within the user's control
- Self Service

2. Key Owner is dead or otherwise compromised

- Key escrow is a cryptographic key recovery process
 - Key is split, encrypted and held in escrow by two trusted third parties.
 - Keys escrowed by the The Land Title and Survey Authority of British Columbia
 - Under the care of security employees
- For a key that is lost or compromised by its original user(s)
 - Escrow is used to decrypt encrypted material,
 - Allowing restoration of the original material to its unencrypted state.
- Key recovery requires two trusted employee
 - Using Face recognition / authentication Employee unencrypted key halves for key reconstitution
 - The entire process is done with creation of a photo audit trail.

Privacy and Security

- Blockchain is built on Public Key Cryptography
- With the added ability to secure, authenticate and perpetuate a digital asset such that it cannot be compromised.
- Public Key Cryptography can be used to both authenticate and to protect (encrypt) information
- As such with an appropriately architected identity authentication system that manages the members of a blockchain both authentication and privacy/security can be achieved
- In such system assets owner can control who they grant access to and accesses can rely on that authenticity of the assets

Addressing the Problem

The Problem

- An eSTC is a certified copy of a land title that is processed by the land title office (the LTSA). State of Title Certificates (STC)
- To electronically issue STCs to customers
- Allows for the expiration and removal of the eSTCs stored with LTSA
- So third-parties can trust an electronic eSTC?
- So third-parties digitally verify a customer's identity?
- So property owners, lawyers, banks, LTSA, etc. be connected to streamline the process of sharing and using eSTCs?
- So access to an eSTC be controlled or permissioned by a property owner to share with other interested parties?

The Solution

- All you have to do is Digitally Sign the eSTC PDF
- Then give it to the property owner.
- No storage, expiration or removal is required
- The owners controls who sees it
- The recipient will have to verify the identity
- LTSA has no capacity to tie identity to land ownership
- What we presented is overkill for the problem you are trying to solve.
- A blockchain land title system will be infinitely superior to the Teranet System in Ontario
- It is the way to convert your paper system