Electrical Engineering

Applications that require authentication for security. Access, on authentication the user for online access, physical Universal Biometric ID created by the user and “Biometric Authenticator” which will verify the biometrics to a unique universal ID. The app becomes a register their mobile phone number and facial developed by Dr. Baldev and his team allows users to any application, anywhere, at any time of security authentication anywhere that is applicable.

Our specific product is a lock box that can be used to store and secure physical belongings. The lock box will have a multi-unit demonstration that will allow our potential users to try out the mobile application authentication system.

Our Lockbox design will mostly be driven by software to allow all the functionality of our design. Shown in Figure 3 and Table 1 below is the Finite State Machine (FSM) Diagram for our Lockbox design:

![Finite State Machine Diagram](image)

Table 1: FSM State Table

<table>
<thead>
<tr>
<th>State Name</th>
<th>Transition Event</th>
<th>Input Event</th>
<th>Output Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Locked</td>
<td>Unlock button</td>
<td>Phone Number</td>
<td>Access granted</td>
</tr>
<tr>
<td>Active Unlocked</td>
<td>Unlock button</td>
<td>Phone Number</td>
<td>Access granted</td>
</tr>
</tbody>
</table>

Our purpose of this project is to be able to securely use any application, anywhere, at any time - not just online or mobile access. The iVALT mobile application developed by Dr. Baldev and his team allows users to register their mobile phone number and facial biometrics to a unique universal ID. The app becomes a “Biometric Authenticator” which will verify the Universal Biometric ID created by the user and authenticates the user for online access, physical access, on-demand proof of ID, and many other applications that require authentication for security.

![Block Diagram](image)

Figure 3: Mobile Phone Controlled Lockbox Block Diagram

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Testing and Results

Overall, the end we were successful with the construction of the Mobile Phone Controlled Lockbox. Shown in Figure 7 below is our completed project with all components assembled.

Key References


Acknowledgements

We would like to thank Prof. Thuy Le, Dr. Baldev, and his team for their guidance throughout the project. We are grateful for all the suggestions and assistance they provided throughout our project development and during these difficult times.