



Intellitory

Sponsor: Aptitude Labs

Josephine Nghiem, Nico Shinozaki, Tamer Tamer, Barry Wang, Justin Zhang

Team Member Roles

Josephine Nghiem - RFID software, management software design

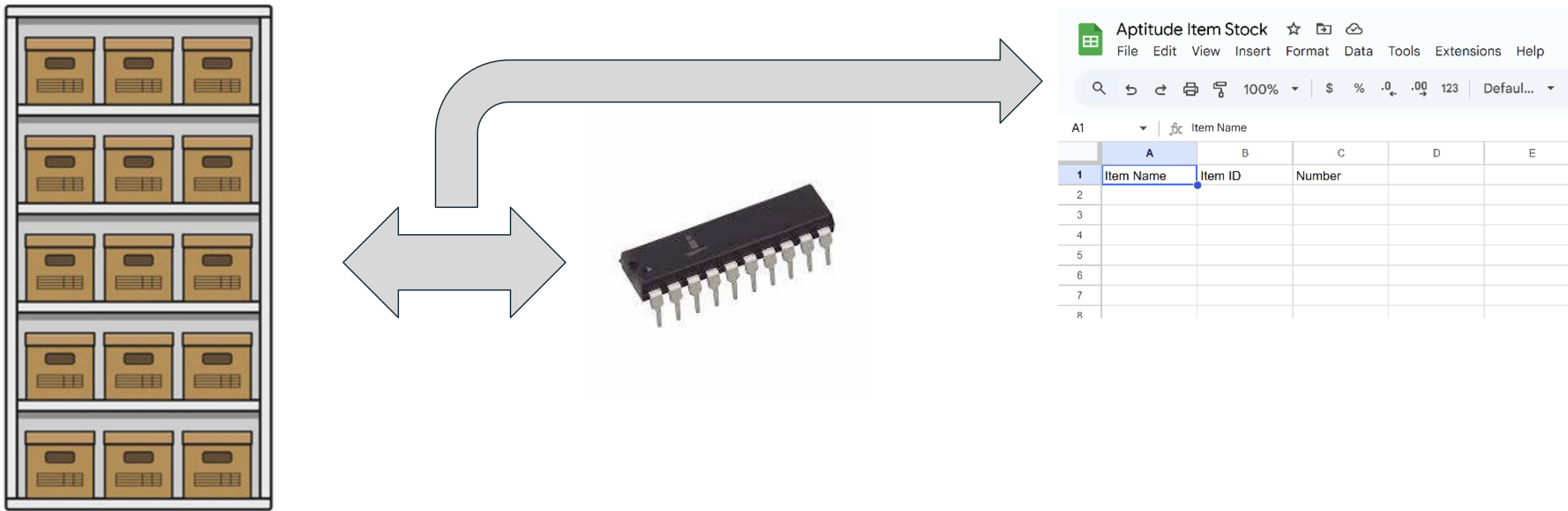
Nico Shinozaki - RFID hardware and software

Tamer Tamer - CAD design, component research, web interface

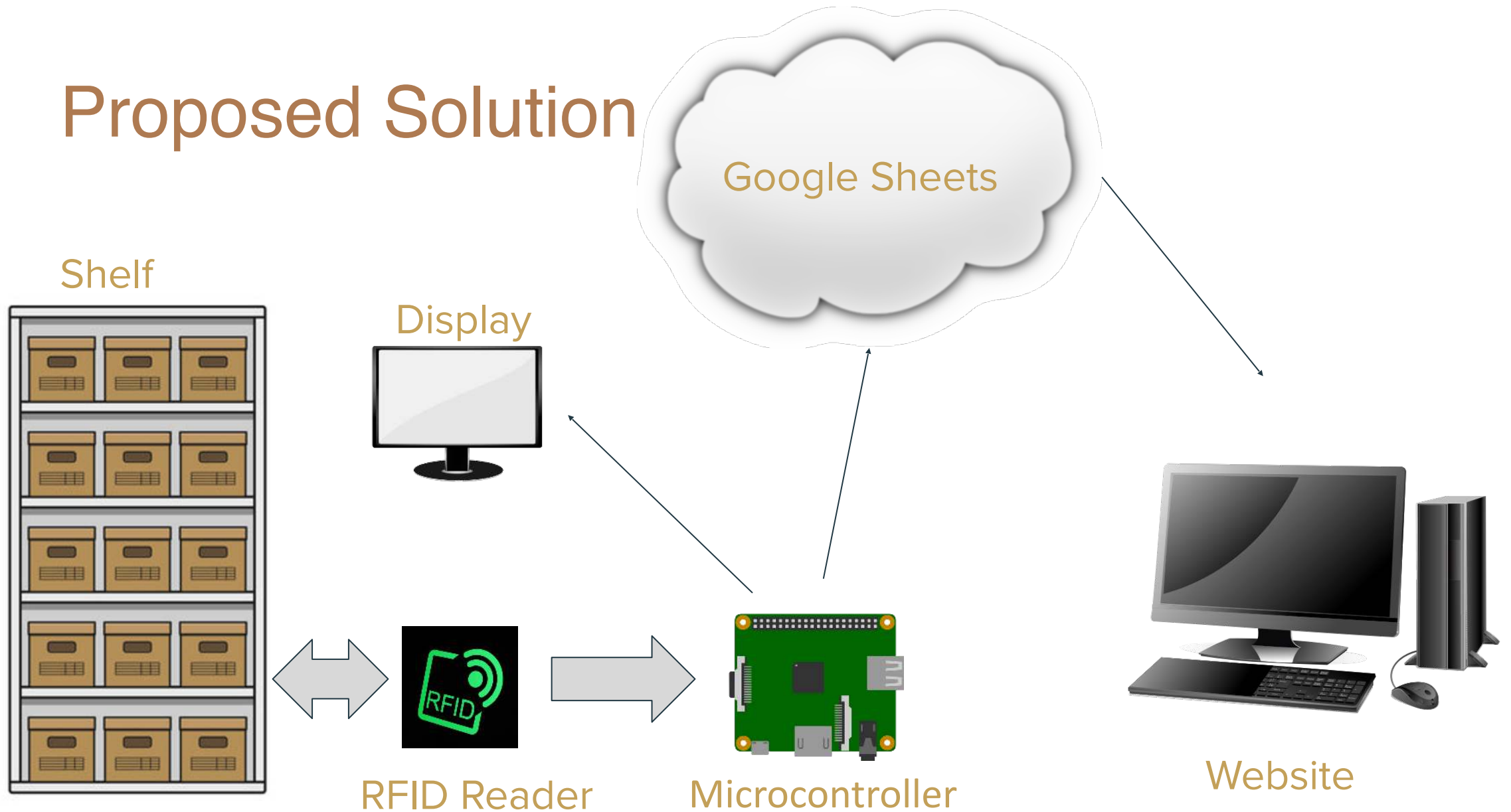
Barry Wang - HW/SW interface, management software design

Justin Zhang - CAD design, component research, web interface

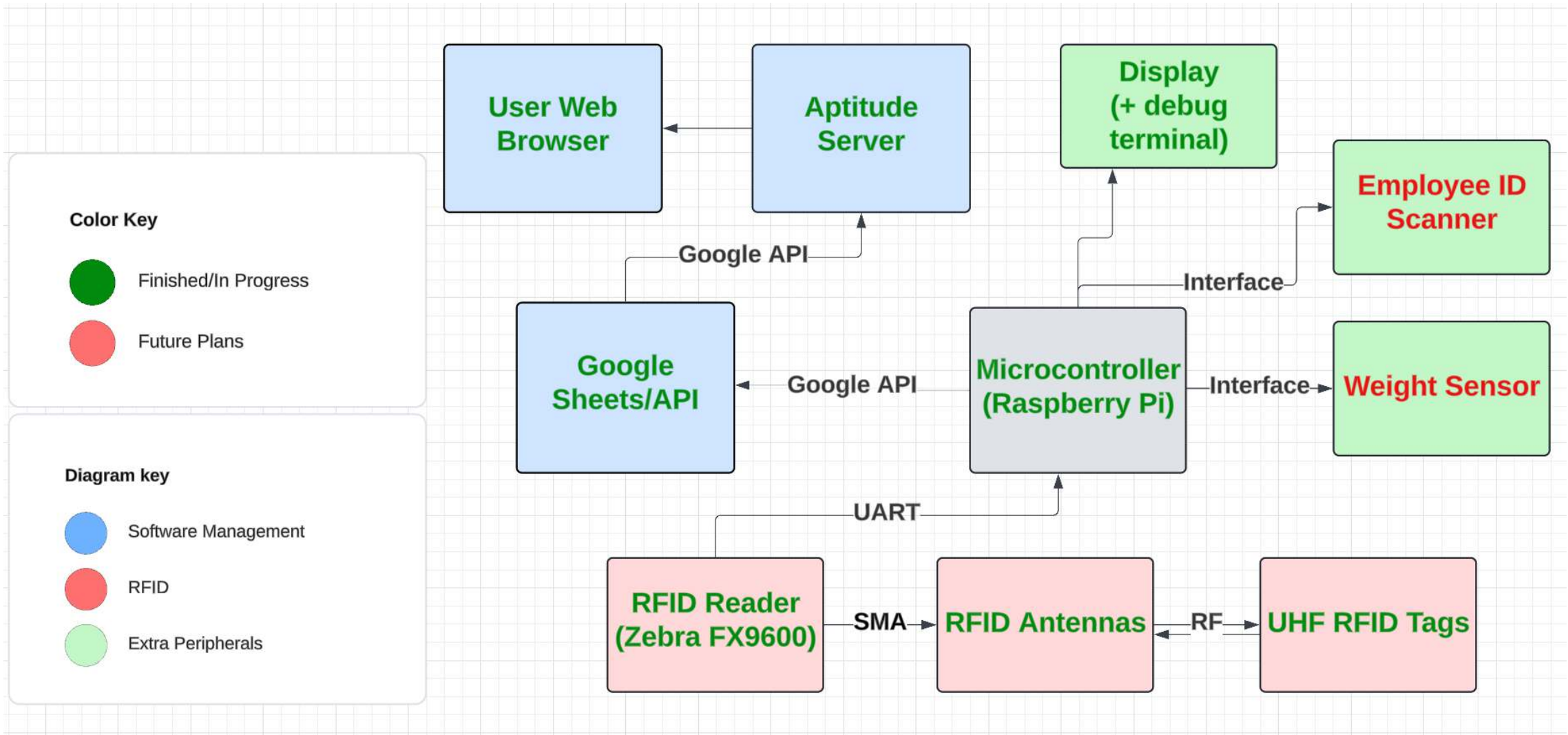
Problem - Overview



Proposed Solution



Block Diagram



Current Progress: RFID Reader

- Main Problem: configuration of the serial port communication
 - Three modes: Debug, **Push Data**, Free Port
 - Free Port documentation non-existent
 - Configuration is a hassle/unnecessary
- Solution: use Selenium (web automation software) to automate configuration



1. Open browser
2. Open website
3. Log in
4. Navigate to configuration page using HTML objects

Current Progress: Embedded Software

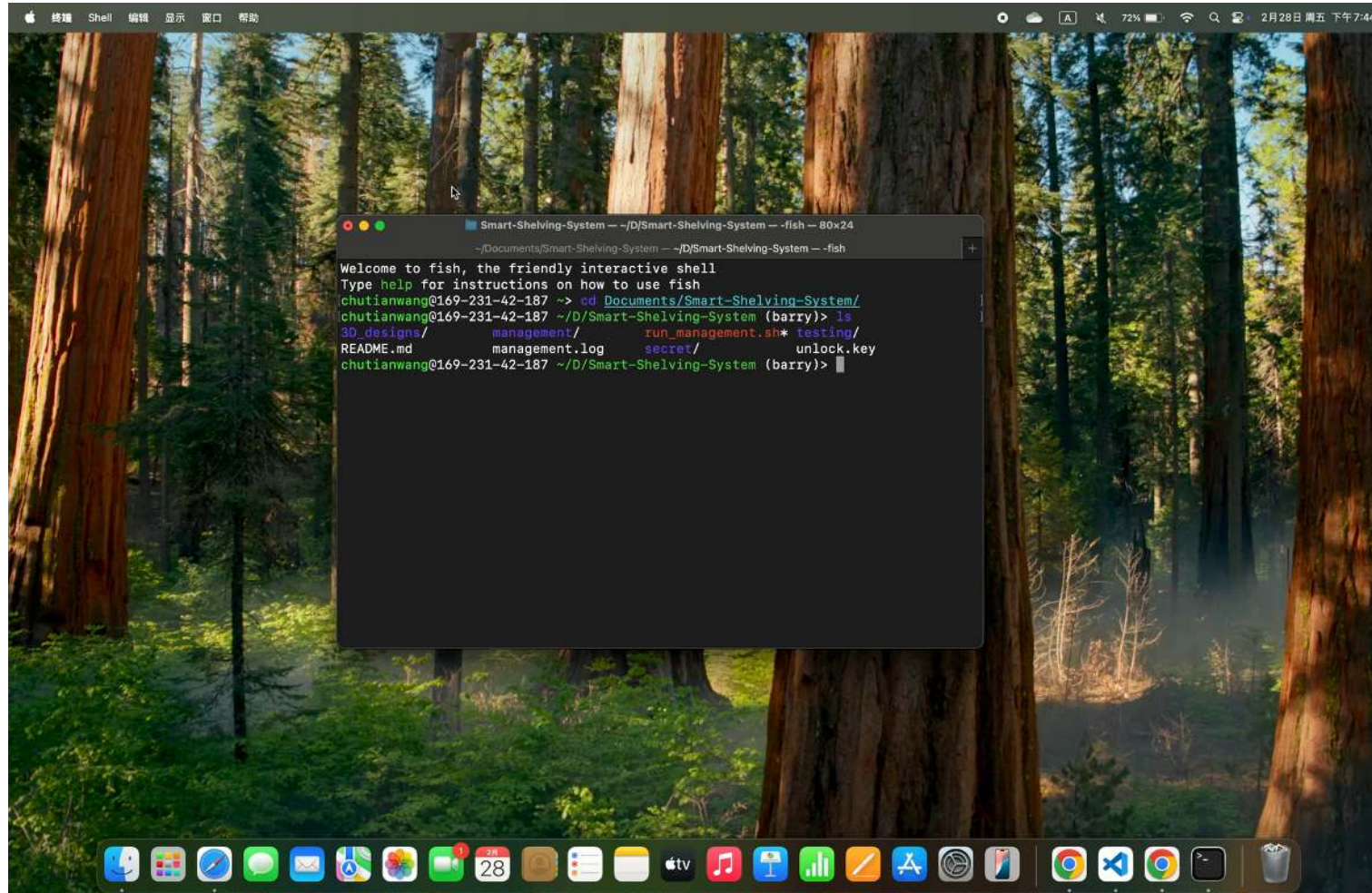
- Completed:

- Data acquisition from RFID scanner
- Data parsing and filtering
- Vanilla data processing algorithm (signal processing model)
- Basic UI implementation
- Admin Console

- In progress:

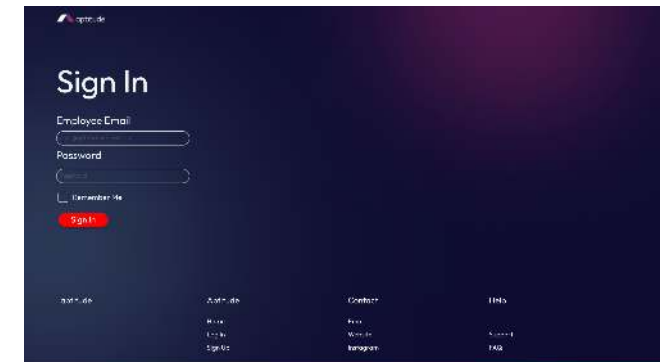
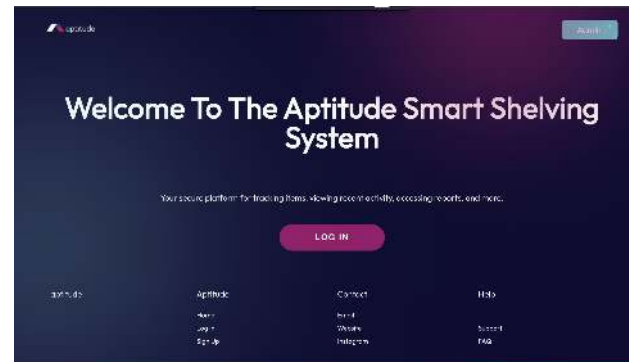
- Tags bitfield definition and item mapping
- Improved data processing based on hidden Markov models / Bayesian
- Sampling noise reduction with GPI trigger
- User confirmation mechanism
- Platform compatibility

Demo: RFID Reader & Display



Current Progress: Web Development

- Website Setup is Complete
- Completed:
 - Home Page
 - Login Page
 - Sign-Up Page
 - Inventory Data Page
 - Database Setup
 - Website Security Implementation
- To Do:
 - Admin Portal
 - Sign-Up Email Confirmation
- Security
 - CSRF Tokens
 - JWT Tokens
 - HTTPS

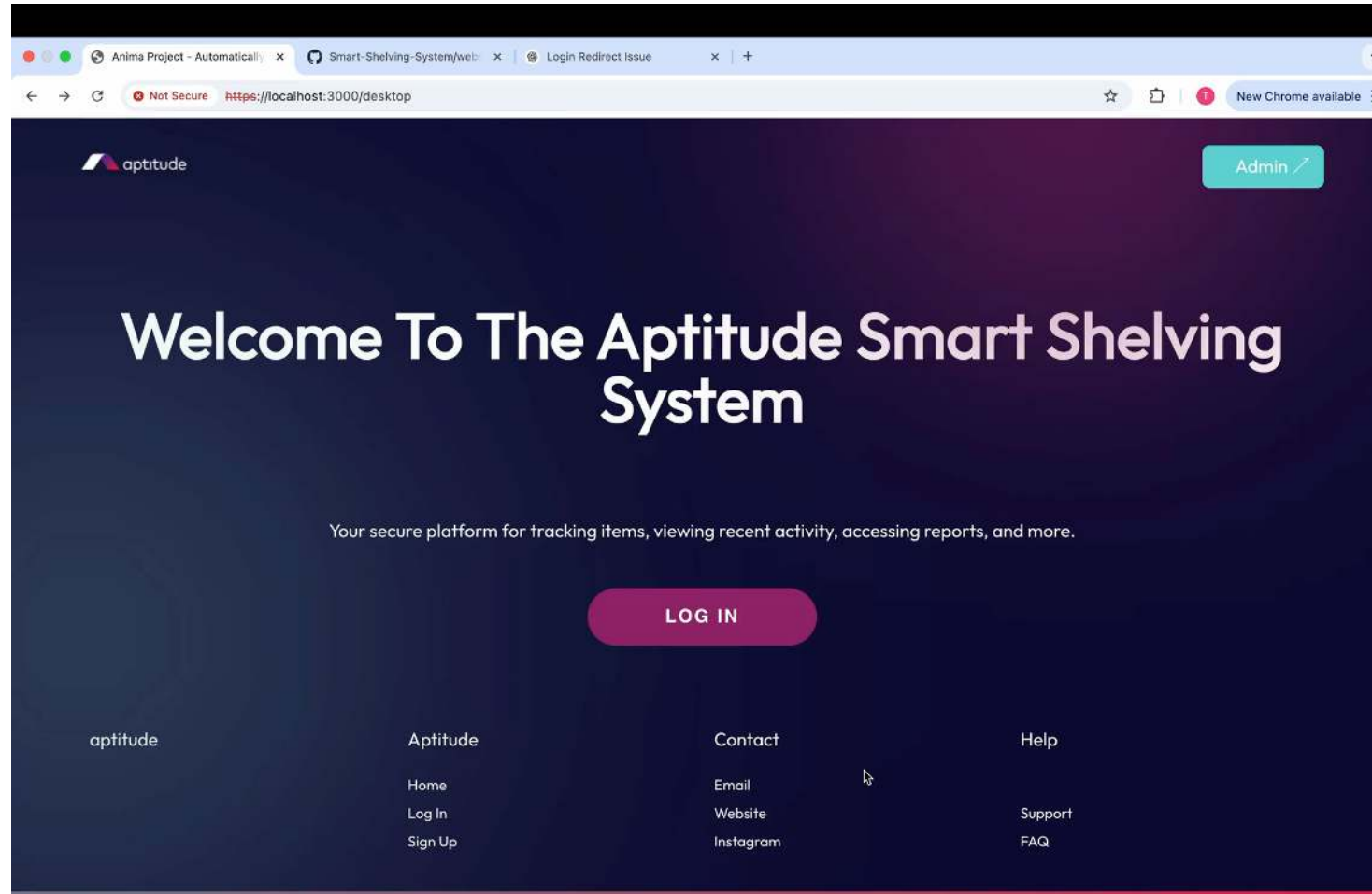


The screenshot shows the 'Inventory' page. It features a dark blue header with the 'aptitude' logo, a 'Search' dropdown, a 'Filter' dropdown, and a 'Search' button. The main content area displays a table with the following data:

Product Name	Part Number	Amount in Inventory	Activity
Copier ton	20233	1	→
Trial Tubes	SR1643	12	→
Upard	UBH5K	105	→
TK LED	LED81K	13	→
IPK Console	PK809P	54	→
Recharge 20 Ohm	UCM33E	245	→

The footer contains links for 'aptitude', 'Aptitude Home Login Sign Up', 'Contact Us About Us Privacy Policy', and 'Help Us Support Feedback'.

Web Development



Approximate Schedule: Spring

- Final physical design of drawer
 - Mounts, wire management, display
- Improve accuracy of RFID reader
- Employee scanner
- Weight sensor

Thank You

Special thanks: Aptitude, Professor Yoga, Torin

