

Financial Management System

Michael Kingston
Steven Miller
Joseph Kingston
Isaac Kingston

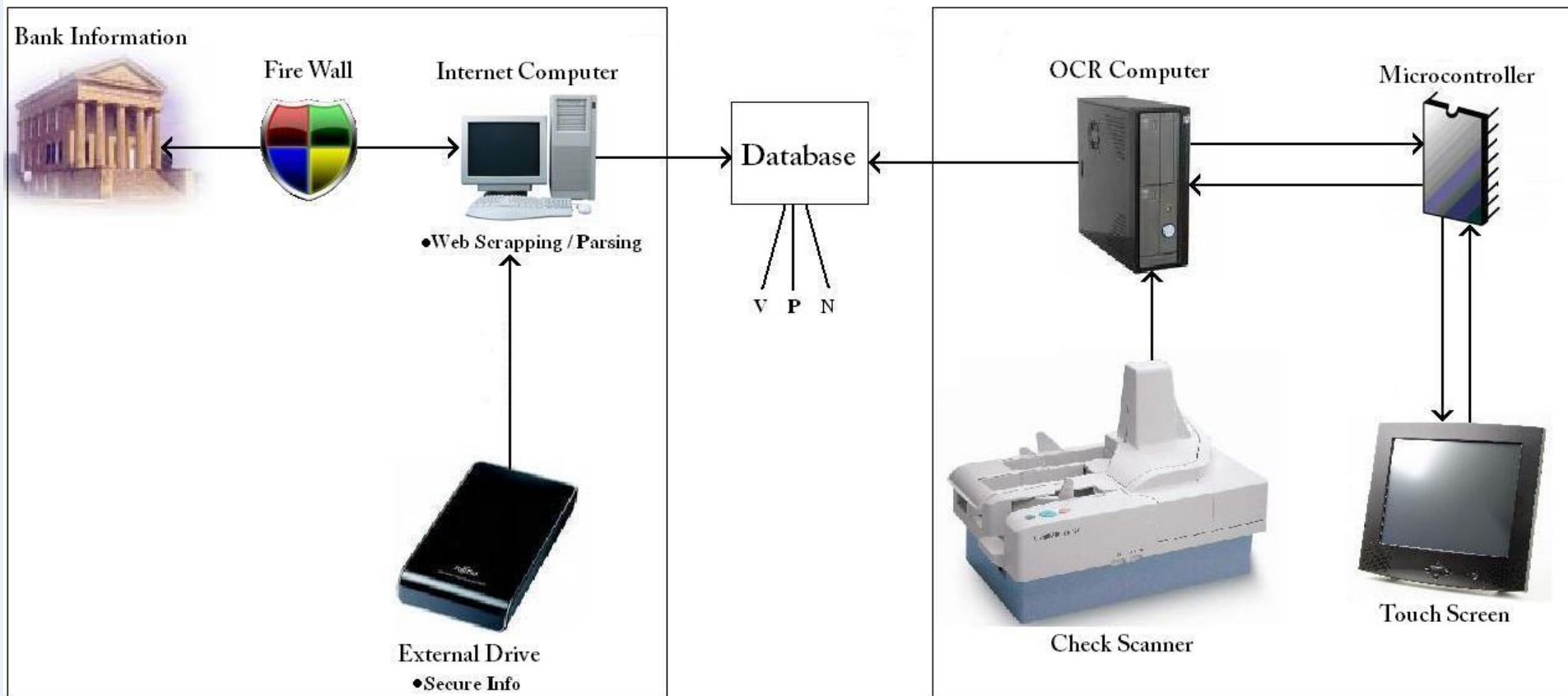
System Model

- Focus on making this work for a business.
 - We've been talking with some accounting firms, and regular businesses.
 - Sponsor offered to loan expensive parts.
 - Check Scanner
 - Ingres Database
 - OCR Software

Last Time

BIE Component

PDE Component



BIE (Bank Information Extraction)

- Internet Computer
 - Responsible for any contact to the world outside our system.
 - Not used to store any sensitive data.
 - It will hold the program we write, that navigates and collects information from the banks.
 - This program will also have additional features such as emailing users when accounts are overdrawn.
 - We will deploy our program with Apache's Tomcat server using CSS, AJAX, Java Servlets, JSPs, etc...
 - It will hold our firewall to the Internet.
 - The program that decrypts our sensitive data from our external drive will also rest on here.

BIE (Bank information Extraction)



- External Drive

- Responsible for holding any secure data.

- Will hold the program responsible for storing and transferring secure data to the internet computer.
 - We are planning on having this data encrypted.
 - External Drive will be an Iron key
 - World's safest flash drive
 - Prevent any worry of drive getting lost or stolen.

Bank extraction from last time

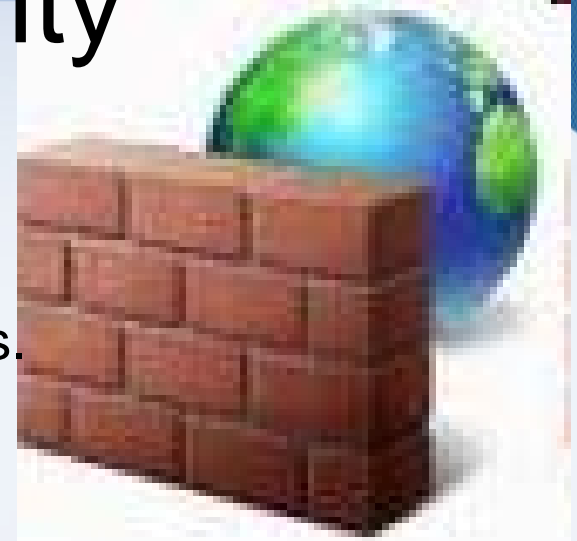
- We were stuck with the issue of deciding whether to scrape our information directly or being given our information through an API
- We met with different companies that are doing what we are trying to do, but not to the full extent.
 - They lack the ability to compare with scanned documents so they are limited to whatever the bank provides or manual entering.
 - The goal of our system is to automate everything. We have not seen any system that does everything we are trying to accomplish.

Bank Extraction Method

- We have met with various banks and will start with Chase. As time permits then we may try expanding our project to other banks.
- Chase's IT department is willing to provide us with an API.
- We will be meeting with their software team in the next couple of weeks on how we will operate.
- We imagine it will be a similar protocol to what various accounting products such as quickbooks use.
(quickbooks has a protocol to grab the bank data called direct connect that is local to only quickbooks)

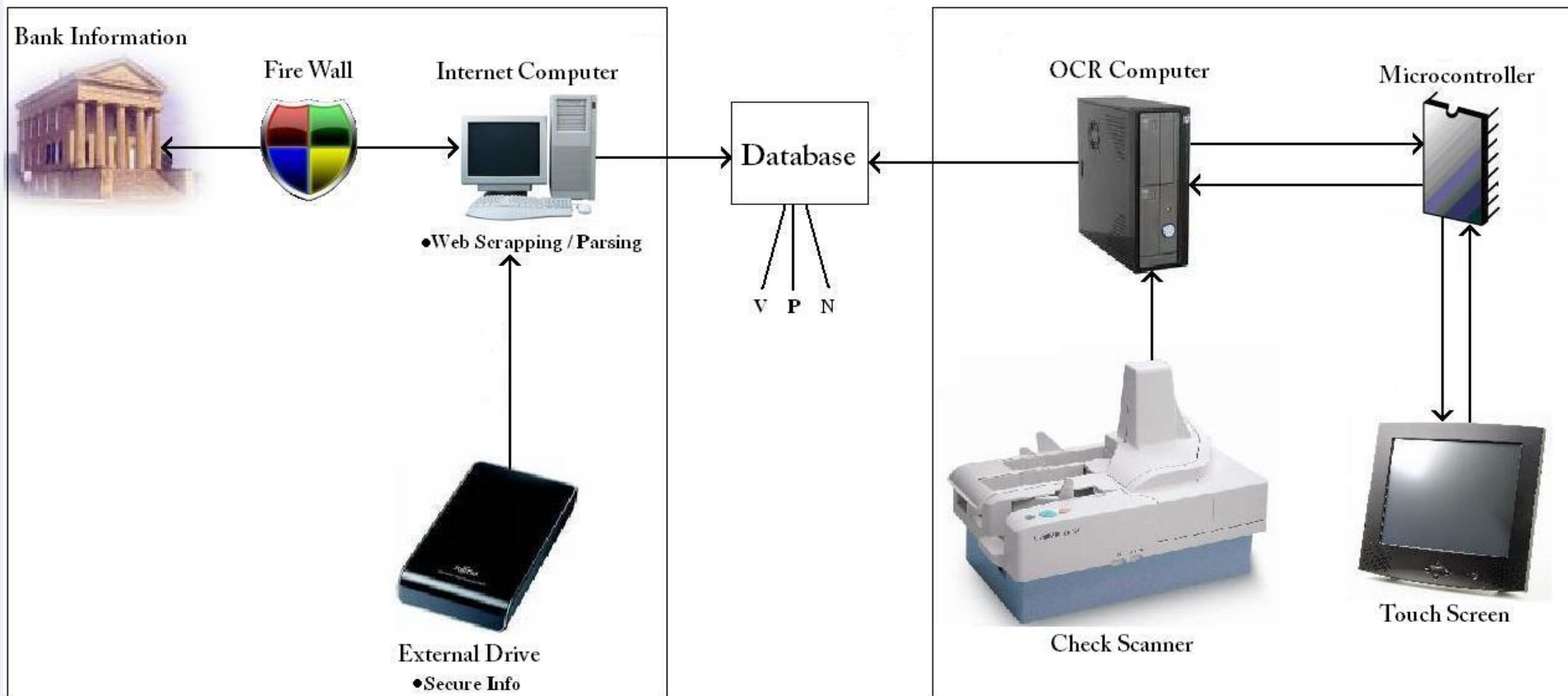
Software Security

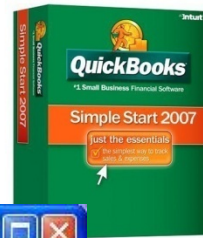
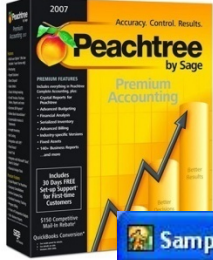
- Anything that deals with money is a big issue if security is compromised.
 - We will be using our own accounts
 - We want to protect against hackers/spoofers.
- Security Measures
 - Iron Key
 - Data will be encrypted on the drive
 - Acid feature ensures security
 - We will have a firewall between internet computer and the internet.
 - Any data sent to or received from the bank will be encrypted.
 - We are discussing encrypting data between internet computer and the database
 - Database will be a one-way write database



BIE Component

PDE Component





Simple User Interface

Sample Larry's Landscaping & Garden Supply - QuickBooks Pro 2004

File Edit View Lists Company Customers Vendors Employees Banking Reports Window Help

Invoice Cust Item MemTx Vend Check Bill Reg Acct Rmnd Find Backup Support

Checkings Ask a help question Ask How Do I?

Go to... Print... Edit Transaction QuickReport

Date	Number	Payee	Payment	✓	Deposit	Balance
	Type	Account	Memo			
12/12/2007	1128	Bayshore Water	23.27			36,020.30
	BILLPMT	Accounts Payable	370C-99336622			
12/12/2007	1129	Patio & Desk Designs	182.50			35,837.80
	BILLPMT	Accounts Payable	DE-0918			
12/15/2007	DEP	-split-			4,035.00	39,872.80
		Deposit				
12/15/2007	To Print	Middlefield Nursery	240.00			39,632.80
	BILLPMT	Accounts Payable	09876			
12/15/2007	To Print	Patio & Desk Designs	1,275.00			38,357.80
	BILLPMT	Accounts Payable	DE-0918			
12/15/2007	To Print	Sena Lumber & Building Materials	1,725.00			36,632.80
	BILLPMT	Accounts Payable				
12/15/2007	To Print	Smallson & Associates	375.00	⚡		36,257.80
	BILLPMT	Accounts Payable	2907			
12/15/2007	To Print	Conner Garden Supplies	2,835.00			33,422.80
	BILLPMT	Accounts Payable	R 594			
12/15/2007	To Print	Mike Scopellite	800.00			32,622.80
	BILLPMT	Accounts Payable	1099-12385			
12/16/2007	SEND		100.00			32,522.80
	TRANSFR	Savings	Funds Transfer			
12/22/2007	SEND	Robert Carr Masonry	675.00			31,847.80
	BILLPMT	Accounts Payable	678J-09			
12/15/2007	Number	Payee	Payment		Deposit	
		Account				

Splits Ending balance 31,847.80

1-Line

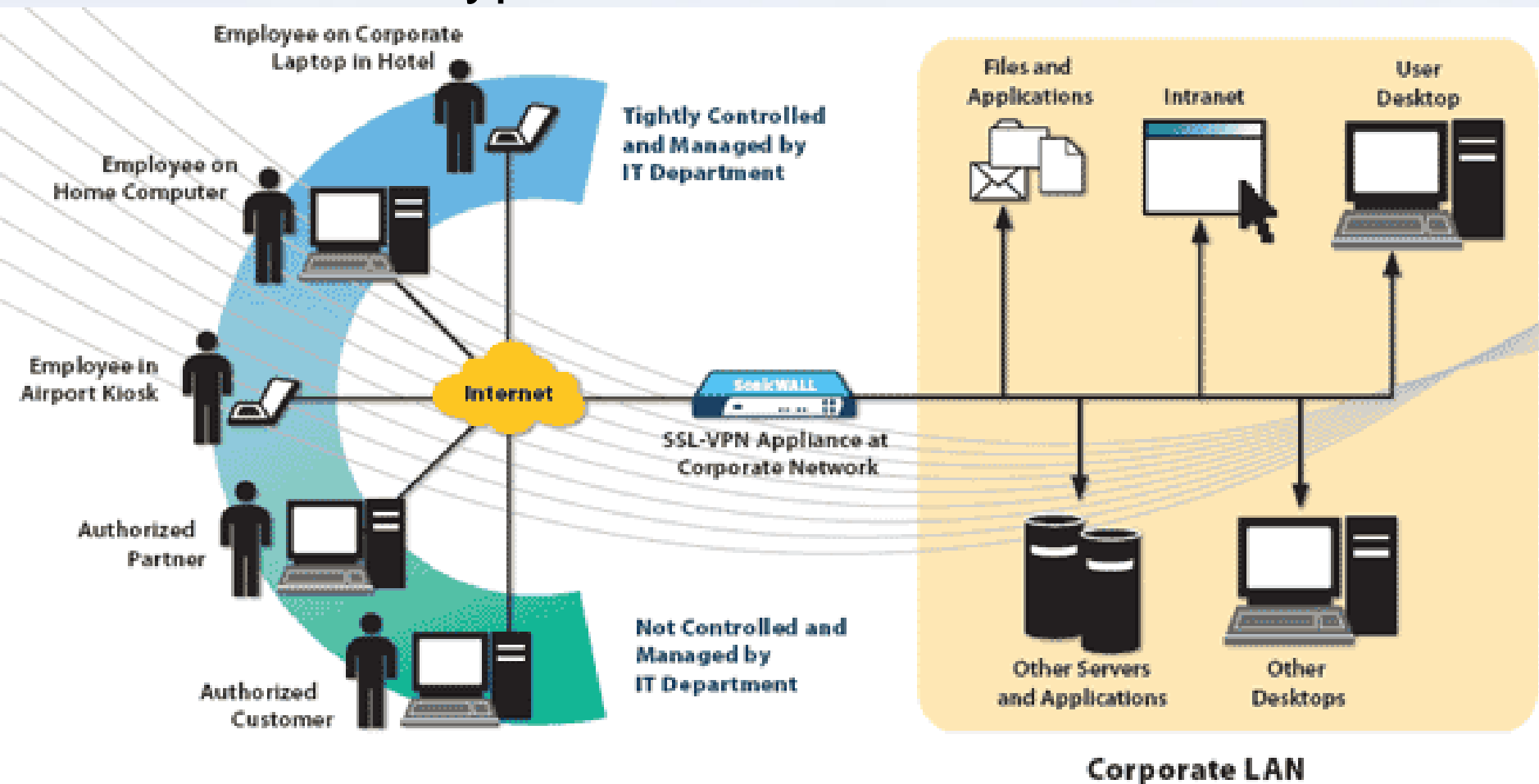
Sort by Date, Type, Number/Rel

Record Restore

- Navigators**
- Company
 - Customers
 - Vendors
 - Employees
 - Banking
 - Business Services
 - Reports
 - Help & Support
- Open Windows**
- Checkings
 - Chart of Accounts
 - Company Navigator

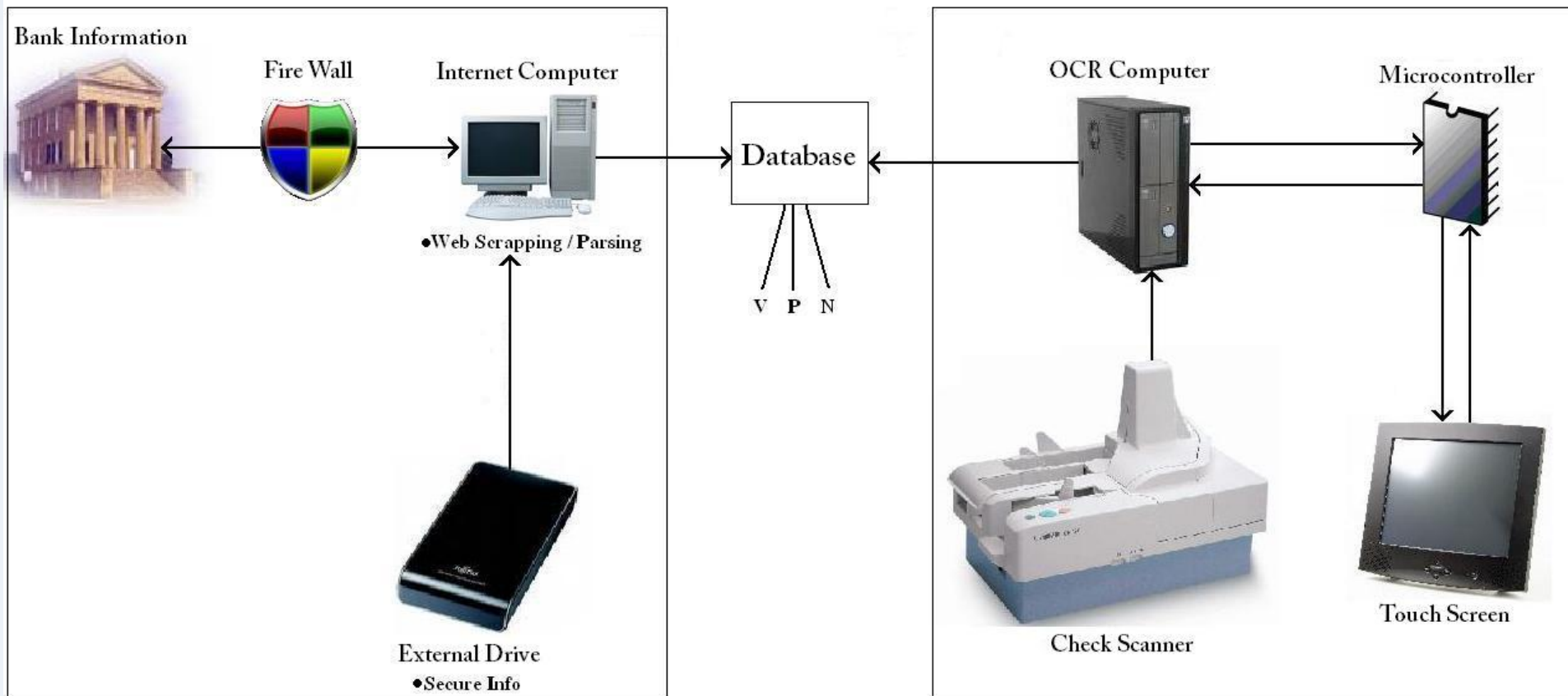
VPN Setup

- All communication sent to other members of the VPN is encrypted when sent over the internet.



BIE Component

PDE Component



OCR Software

- Optical Character Recognition (OCR) is hard.
 - Explains the price range: \$300-\$120,000
- Cost factors:
 - Handwritten text: harder to translate.
 - Volume/Usage: server class OCR software is the most expensive.
 - Fixed vs. Dynamic Document Layout.
 - Program-Friendly vs. User-Friendly

OCR Software That We'll Use

- Sponser uses FlexiCapture 8.0 Professional from Abbyy™.
- OCR Features:
 - Can interpret handwritten text...
 - Works with dynamic document layout.
 - Allows user to work with unlimited documents (as opposed to 5,000 pages per month).
 - Program-Friendly.
- User Licensing Issue
 - Limited to 1 user at a time.

Dongle

- Definition: an electronic device that must be attached to a computer (usually through USB) in order for it to use protected software.
- Multiple computers can use OCR Software, but only concurrently.
- Sponsor has one setup already.
 - They need it daily until about 2pm.
 - They don't need it on weekends.
- We can work with this.

Check Scanner

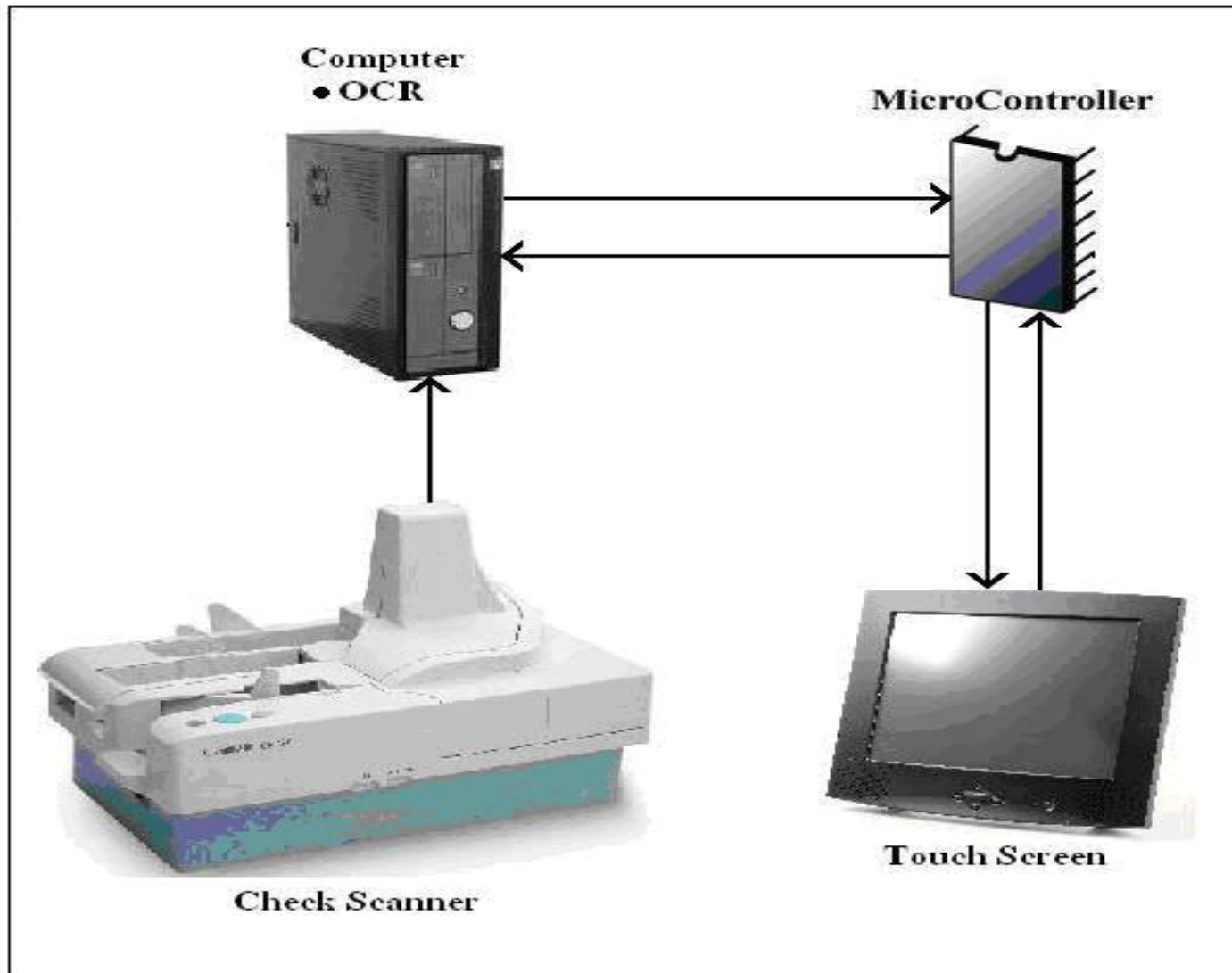
- Canon™ CR-180 Check Scanner
 - one that's been offered to us



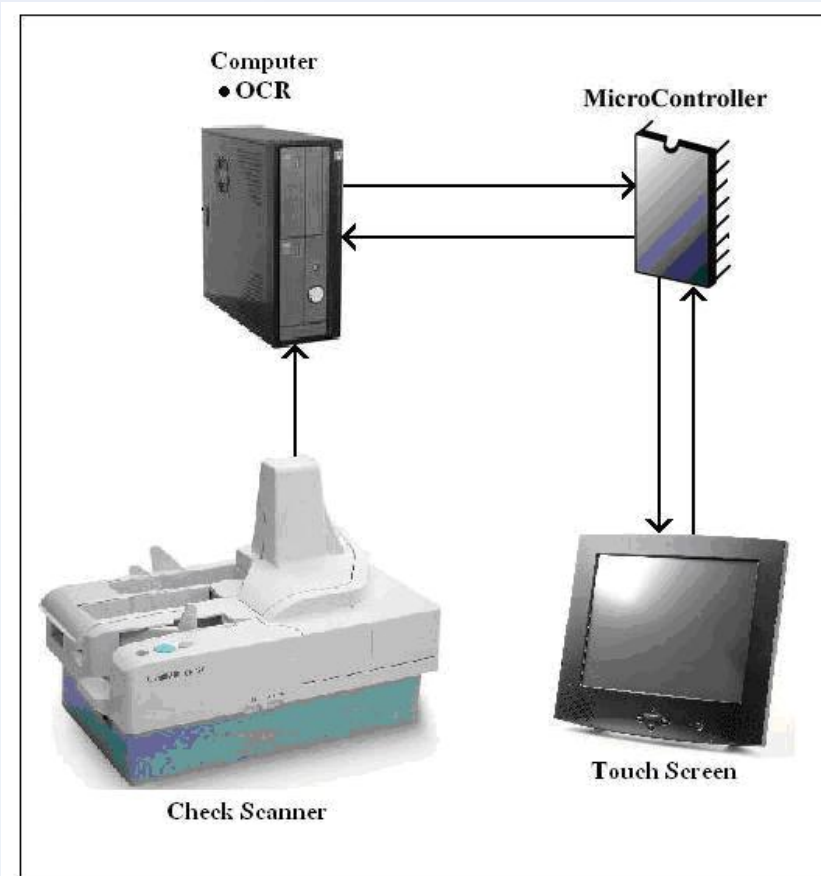
CR-180 Check Scanner

- Specs
 - Scans about 180 checks a minute
 - depends on grayscale vs. black and white, and resolution.
 - Can read the Magnetic Ink on checks.
 - Claims to be able to work with all paper weights (NCR, receipt paper, cardstock, etc.)
 - Have to adjust rollers if you change paper weight.
 - Can scan documents of different sizes at the same time.

PDE Component



Goal of the PDE Component



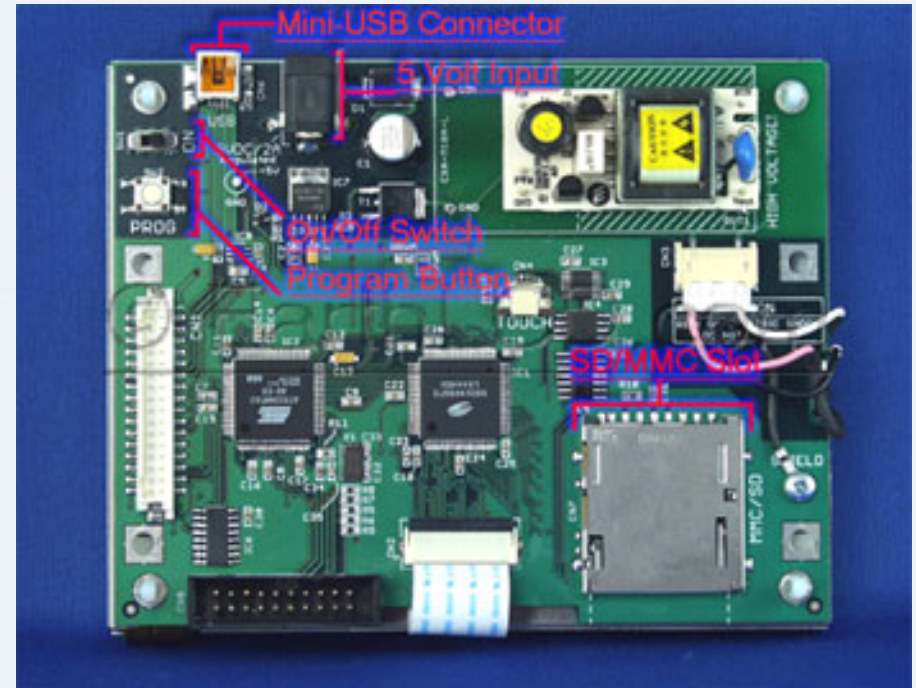
- Provide feed back of the status of the scanner
- Provide user interface the scanner
- Allow user to control data being sent

XLCD

- We want the microcontroller to control the content of the screens not the OCR Computer



EZLCD kit

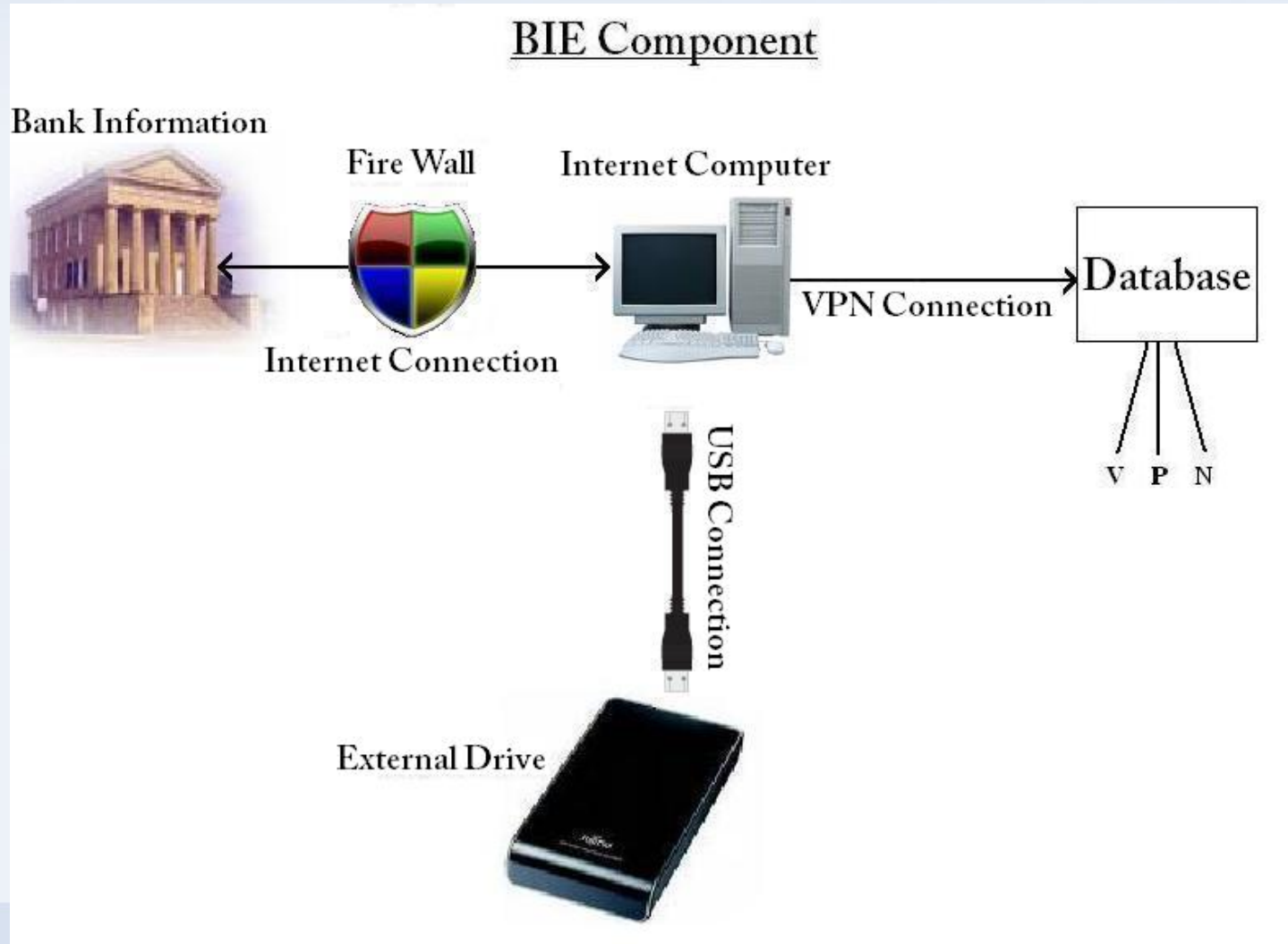


EZLCD specs

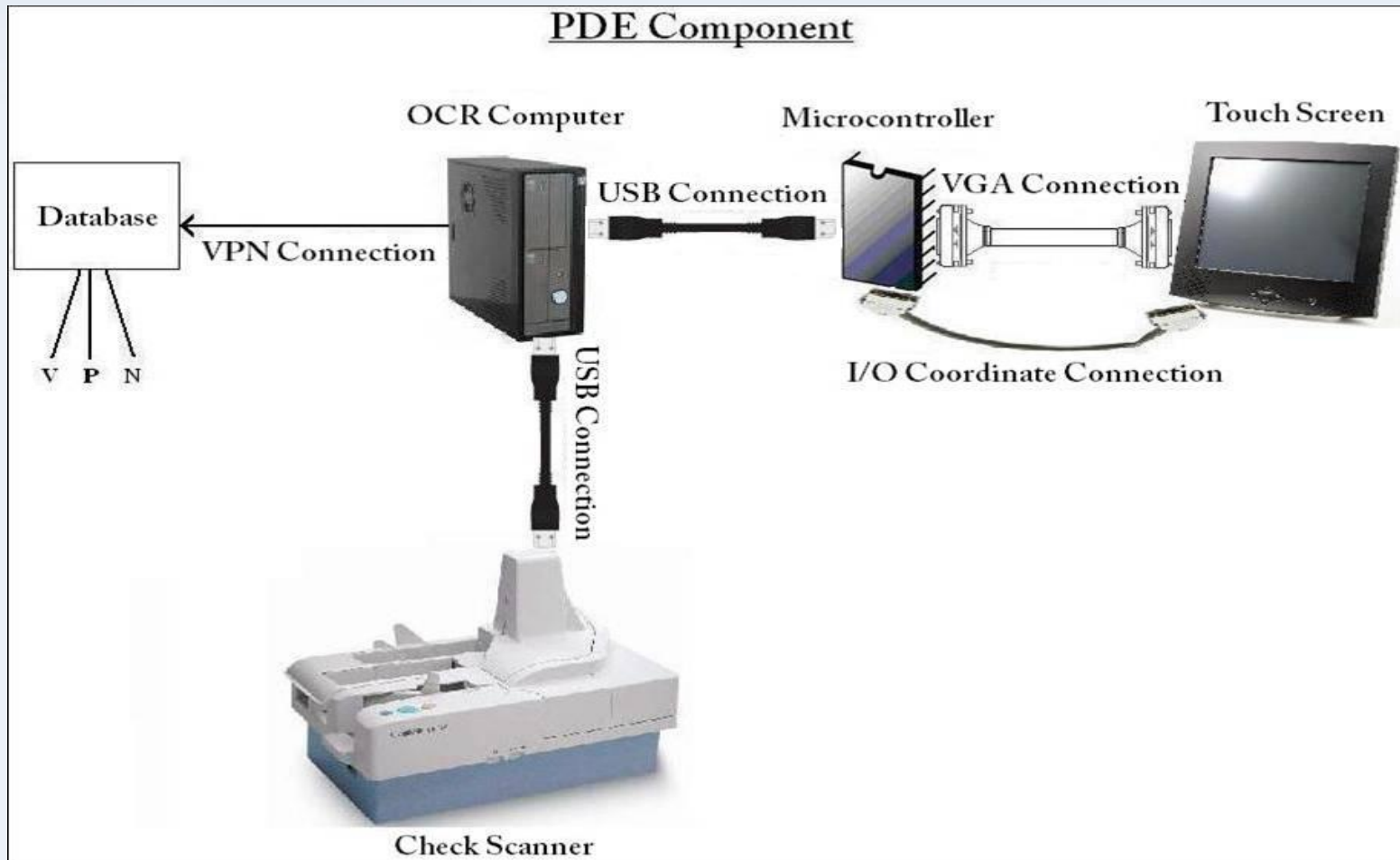


- Programmable microcontroller
- Interface through serial, parallel, or USB
- 64Kb Flash ROM for fonts.
- 1 Meg Flash ROM

Integration



Integration



Bill of Materials

Name	Price	Vendor
Internet Computer	\$0.00	One of Us
Database Computer	\$0.00	One of Us
OCR Computer	\$0.00	One of Us
Ingres Database Software	\$0.00	Ingres (open source)
OCR Software	\$0.00	Fidelity Funding
Microcontroller/LCD Kit	\$350.00	LCD Earth
Canon CR-180 Check Scanner	\$0.00	Fidelity Funding

Risks

- Integration
 - One of the largest and most important portions of this project.
 - Lots of commercial products that aren't made specifically to work with each other.
- OCR Software (Resolved)
 - Could cost too much to get the software we want for this project.
- Extracting bank information through the web
 - Could be too difficult or impractical (websites change).
- Security
 - We'll be using our bank accounts.
- Others will come up.

Projected Milestones

- First Day of Fall Semester (Monday, August 24, 2009):
 - Have all of our commercial hardware and software available.
- Wednesday, September 30, 2009:
 - Project can successfully access bank information through the bank's API.
- Friday, October 16, 2009:
 - Microcontroller/Touch-Screen completed (as a stand alone).

Projected Milestones (cont.)

- Friday, October 30, 2009:
 - PDE component works (may have small bugs/issues).
 - BIE component works (may have small bugs/issues).
 - Begin full integration and testing with PDE and BIE components.
- Monday, November 30, 2009:
 - Database Application is functional.
- Wednesday, December 16, 2009:
 - Project Completion.

Questions?