

WEBSITE

- > DOMAIN NAMES REGISTRATION
- > HOSTING
- > SITE DESIGN / REDESIGN TO ENHANCE BRAND VALUES
- > DYNAMIC OR STATIC WEB DESIGN TAILORED TO SUIT YOUR NEEDS.
- > E-COMMERCE FUNCTIONALITY WITH DATABASE INTEGRATION.
- > SITE INTERACTIVITY WITH FLASH PLUGINS.
- > DOMAIN REGISTRATION, SITE HOSTING AND EMAIL ACCOUNTS.
- > SEARCH ENGINE REGISTRATION
- > TECHNICAL SUPPORT.

GRAPHIC DESIGN

- > COMPANY AND CORPORATE BROCHURE DESIGN.
- > ANNUAL REPORTS.
- > CORPORATE LOGO, LETTERHEAD AND BRANDED STATIONERY.
- > SALES LITERATURE
- > POINT-OF-SALE MATERIAL ENGINEERING AND DESIGN.
- > DIRECT MARKETING.
- > DIRECT MAILPIECE SCRIPTING AND DESIGN.
- > COPYWRITING.
- > COPYFITTING.

FingerPrint Security Door
WWW.RAKDESIGN.COM

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ELET4300/4108
Senior Project

College of Technology
University of Houston

What does it do?

Securing household with biometric fingerprint technology. Owners do not need to carry keys anymore. Users can open the door simply by touching the fingerprint reader.



Commercial Usage

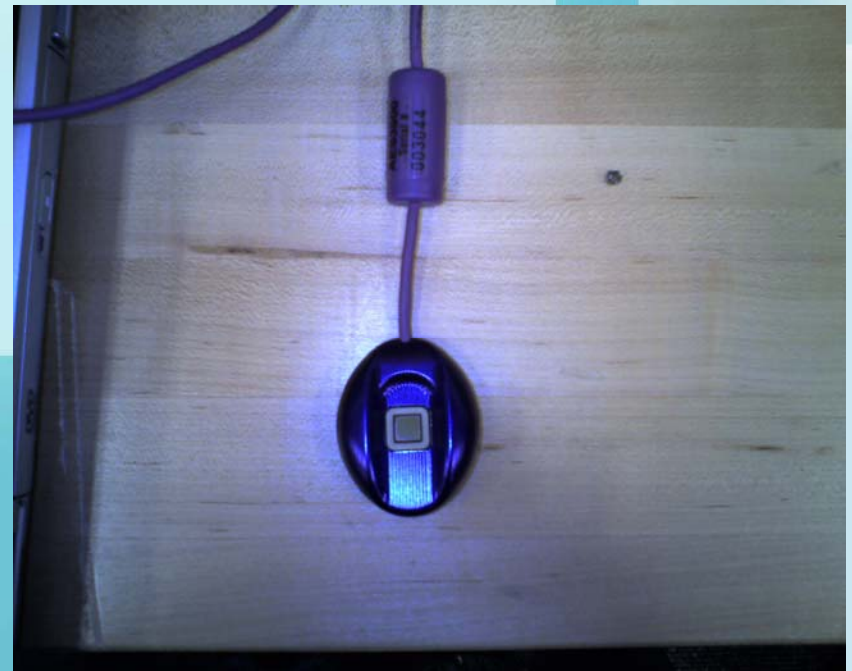
- Homes, small businesses, and apartments
- Simple enough to be used in households that have children or elders



Description

Step 1

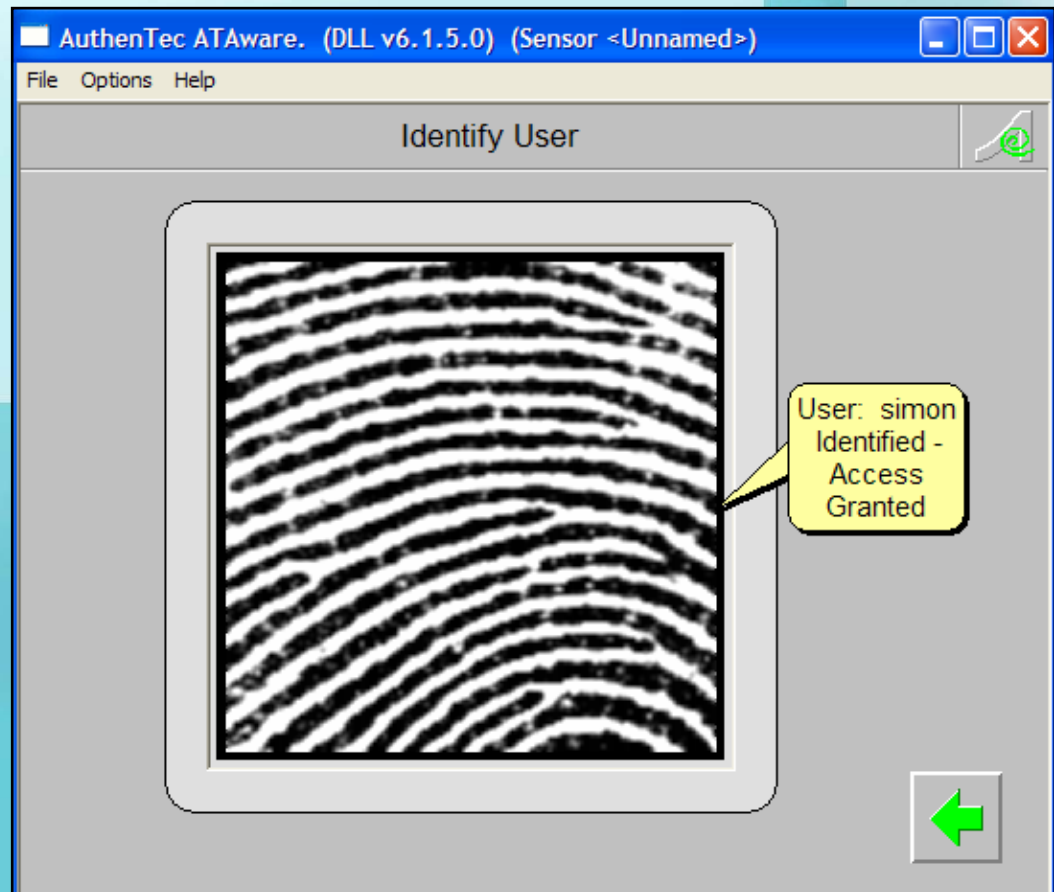
- The user has to touch the reader



Description

Step 2

- Software captures and compares fingerprints, and it grants or denies access.



Description

Step 3

```
AGCLog.txt - Notepad
0tq`08zN`-0iRz00u0h,0`NT00E<E-0V0A0h0y0a00M0b0e0 -nk0i7_0a41e0±0<“,
;@!@LeB-Cc0:982E0T5AX2%
yzc5T8Y`b0c0a-fu00a0{0fv}c02F00000âyzi`7ic0-xzA000#E0Añ79ât|F0&`*Hw0»0i0c0
.A`n0`H6Ez8è`0u`A`@%E`E0eZqIRz`m03`ñà0F#!00010L`&0Amf0y0-kSmbq1B - *0I78x`410
`à0ù0eav`!`>Le(-CuE)?82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m00`ñà0F#!00010L`%0Amf0y0-kSmbq1B - *0I78xb410`à0ù0eav
;`!`>Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m01`ñà0F#!00010L`!0Amf0y0-kSmbq1B - *0I78x`410`à0ù0eav
;`!`>Le(-CuE)?82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m06`ñà0F#!00010L`!&0Amf0y0-kSmbq1B - *0I78xb410`à0ù0a]
;`!`9Le(-CuE)1982A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m07`ñà0F#!00010L`!+0Amf0y0-kSmbq1B - *0I78xc410`à0ù0iW
;`!`?Le(-CuE)-82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a49â00(0&`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m04`ñà0F#!00010A`#0Amf0y0-kSmbq1B - *0I78xa410`à0ù0äv
;`!`9Le(-CuE)-82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m04`ñà0F#`00010A`0`5Amf0y0-kSmbq1B - *0I78xc410`à0ù0äv
;`!`9Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a79â00(0%`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m04`ñà0F##00010A`+0Amf0y0-kSmbq1B - *0I78xc410`à0ù0a\
;`!`9Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m04`ñà0F#`00010!`!0Amf0y0-kSmbq1B - *0I78xc410`à0ù0âR
;`!`9Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eZqIRz`m04`ñà0F#!00010L`!0Amf0y0-kSmbq1B - *0I78xa410`à0ù0eav
;`!`>Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eEwIRz`m02`ñà0F#!00010L`!0Amf0y0-kSmbq1B - *0I78xc410`à0ù0iP
;`!`?Le(-CuE)1882A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a79â00(0%`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
E0eSIRz`m02`ñà0F#!00010L`&0Amf0y0-kSmbq1B - *0I78xc410`à0ù0i]
;`!`?Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a49â00(0&`*0`0i0Ec0N`ñ0!X0E08è`A`@%E
-Az1f0rIRz`m02`ñà0F#!00010L`&0Amf0y0-kSmbq1B - *0I78xc410`à0ù0i]
;`!`?Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a49â00(0`*0`0i0Ec0N`ñ0!X0E08è`A`@%E
-Az1f0rIRz`m02`ñà0F#!00010L`"0Amf0y0-kSmbq1B - *0I78xc410`à0ù0i]
;`!`?Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a49â00(0&`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m03`ñà0F#!00010L`0`0Amf0y0-kSmbq1B - *0I78xc410`à0ù0a]
;`!`8Le(-CuE)082A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a79â00(0%`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m00`ñà0F#!00010L`%0Amf0y0-kSmbq1B - *0I78xc410`à0ù0i5
;`!`8Le(-CuE)182A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB7F~µèyZ54Qac0i1N00#`5`a49â00(0`*0`0i0Ec0N`ñ0!X0E08è`A`@%E
-Az1f0rIRz`m01`ñà0F#!00010L`#0Amf0y0-kSmbq1B - *0I78x`410`à0ù0eav
;`!`>Le(-CuEz=82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m06`ñà0F#!00010L`%0Amf0y0-kSmbq1B - *0I78xc410`à0ù0eAT
;`!`?Le(-CuE)?82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB4F~µèyZ54Qac0i1N00#`5`a79â00(0%`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m07`ñà0F#!00010L`*0Amf0y0-kSmbq1B - *0I78xc410`à0ù0a]
;`!`8Le(-CuE);82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a79â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m04`ñà0F#!00010A`#0Amf0y0-kSmbq1B - *0I78x`410`à0ù0äv
;`!`9Le(-CuE)->82A0:5AXP0güzcw=±0
a!a-f>µ=àEQ:Cz.V)YfB5F~µèyZ54Qac0i1N00#`5`a69â00(0S`*0`0i0Ec0N%ñ0!X0E08è`A`@%E
-Az1f0rIRz`m04`ñà0F#`00010A`&0Amf0y0-kSmbq1B - *0I78xa410`à0ù0eav
```

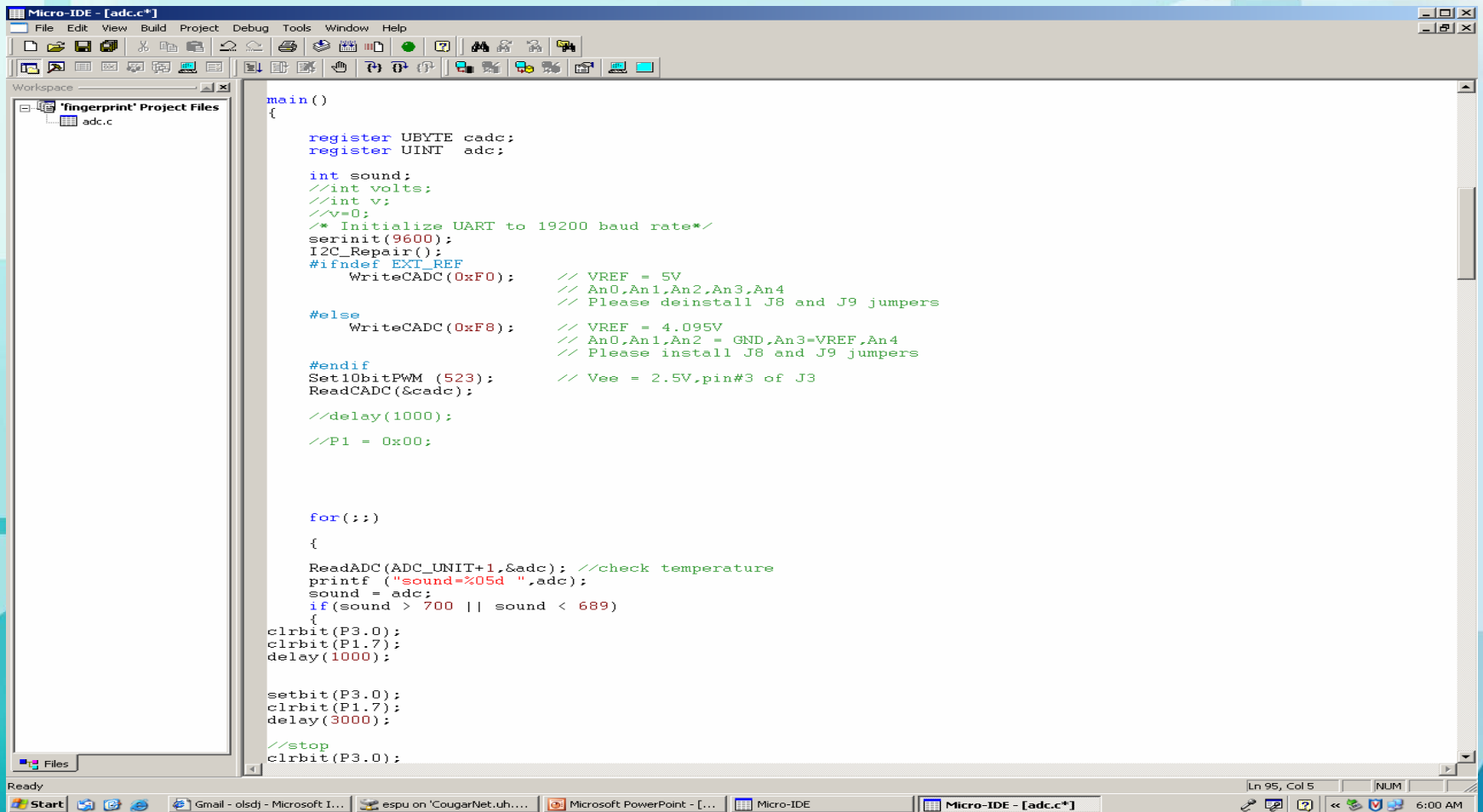
Log file when rejected

Log file when accepted

Description

Step 4

C Program



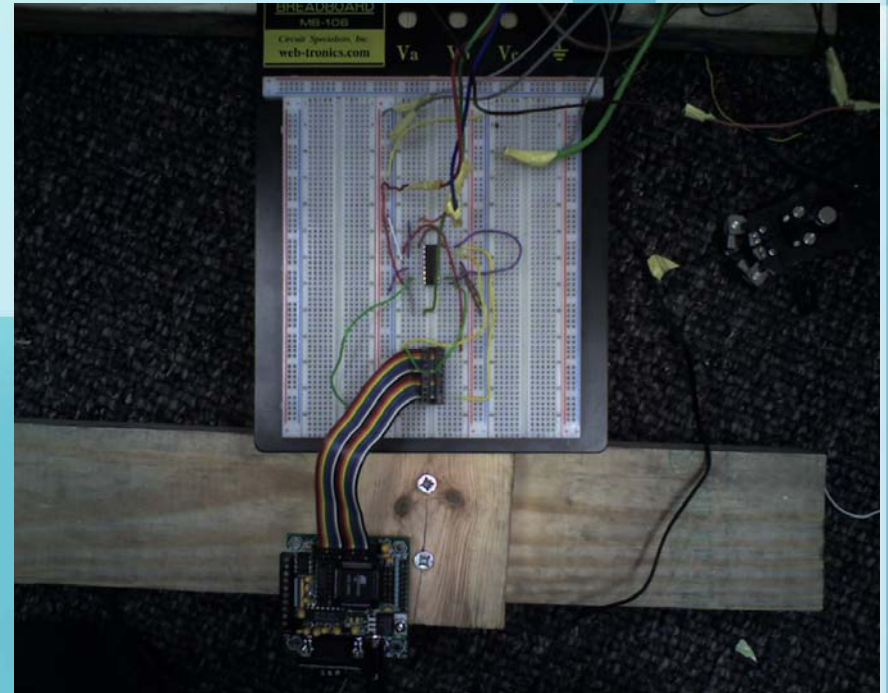
```
Micro-IDE - [adc.c*]  
File Edit View Build Project Debug Tools Window Help  
Workspace  
'fingerprint' Project Files  
  adc.c  
main()  
{  
    register UBYTE cadc;  
    register UINT  adc;  
  
    int sound;  
    //int volts;  
    //int v;  
    //v=0;  
    /* Initialize UART to 19200 baud rate*/  
    serinit(9600);  
    I2C_Repair();  
    #ifndef EXTL_REF  
        WriteCADC(0xF0);    // VREF = 5V  
                           // An0,An1,An2,An3,An4  
                           // Please deinstall J8 and J9 jumpers  
    #else  
        WriteCADC(0xF8);    // VREF = 4.095V  
                           // An0,An1,An2 = GND,An3=VREF,An4  
                           // Please install J8 and J9 jumpers  
    #endif  
    Set10bitPWM (523);      // Vee = 2.5V,pin#3 of J3  
    ReadCADC(&cadc);  
  
    //delay(1000);  
    //P1 = 0x00;  
  
    for(;;)  
    {  
        ReadADC(ADC_UNIT+1,&cadc); //check temperature  
        printf ("sound=%05d ",adc);  
        sound = adc;  
        if(sound > 700 || sound < 689)  
        {  
            clrbit(P3.0);  
            clrbit(P1.7);  
            delay(1000);  
  
            setbit(P3.0);  
            clrbit(P1.7);  
            delay(3000);  
  
            //stop  
            clrbit(P3.0);  
        }  
    }  
}
```

Ready
Ln 95, Col 5
NUM
6:00 AM

Description

Step 5

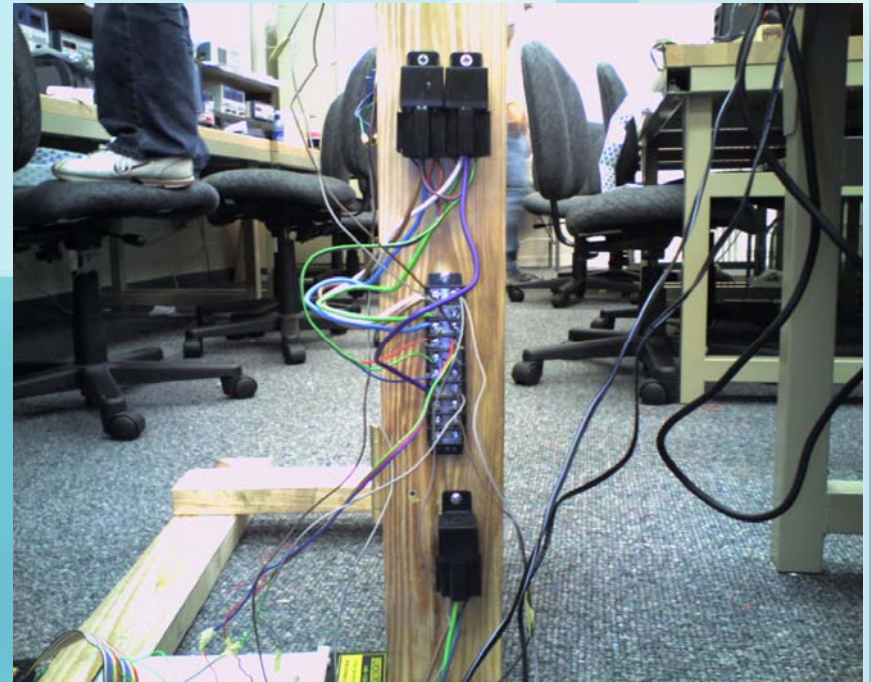
- The audio port of PC will send sound signal to the analog to digital converter of the micro-controller.
- The micro-controller will send a signal to the relay.



Description

Step 6

- The relays will run the lock and motor



Description

Step 7

- The door lock will be open before the motor starts.



Description

Step 8

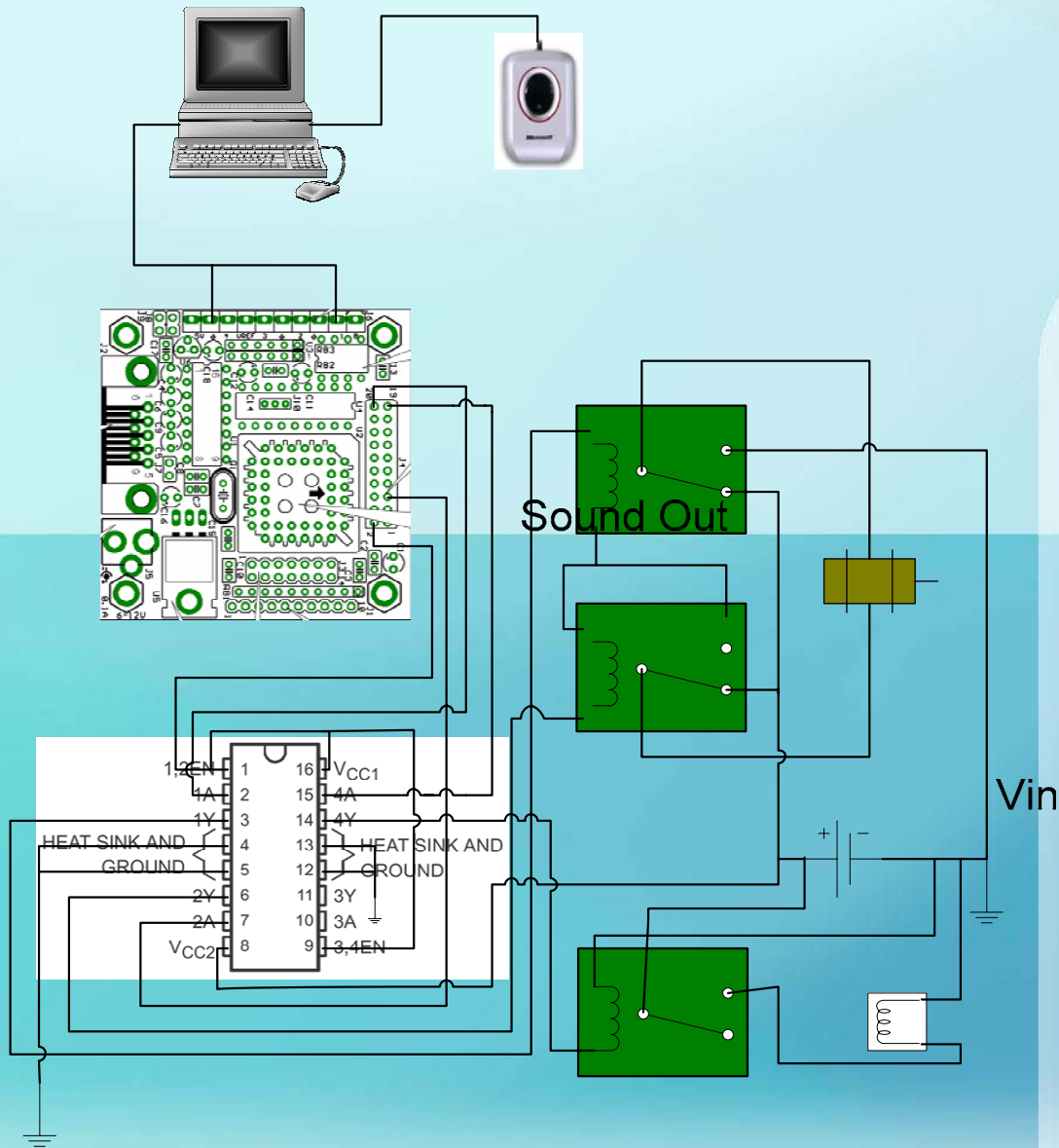
- Motor will open and close the door.



Final Product



Schematic of Hardware



USB

Cost Analysis

1. Material cost
2. Labor cost
3. Total cost



Material Cost

Parts	Source	Quantity	Cost
8051 micro-controller	Class	1	\$90.00
Relays	EPO	4	\$23.75
Motor/12V/3RPM	EPO	1	\$14.95
Socket	EPO	1	\$3.95
Actuator	EPO	1	\$9.95
Woods	Home Depot	N/A	\$7.08
Screws	Home Depot	N/A	\$7.87
Lid Support	Home Depot	1	\$4.49
Knob	Home Depot	1	\$0.98
Speaker	Wal-Mart	1	\$14.63
Electric strike lock	Amazon.com	1	\$45.49
H-Bridge	Digikey.com	3	\$6.00
Authentec Fingerprint Reader	Donated	1	\$0.00
AC DC adaptor	Donated	1	\$0.00
6 V Rechargeable Battery	Donated	1	\$0.00
Breadboard	Donated	1	\$0.00
Total Material Cost:			\$229.14

Labor Cost



	Hourly Rate	Estimate Total Hours worked	Labor Cost	Dream Salary (labor cost * 2.5)
<i>Dinesh Reddy</i>	\$20.00	108 hrs	\$2160.00	\$5400.00
<i>En Hung Pu</i>	\$20.00	108 hrs	\$2160.00	\$5400.00
<i>Sun Yong Chung</i>	\$20.00	108 hrs	\$2160.00	\$5400.00
<i>Vinodh Prabhakar</i>	\$20.00	108 hrs	\$2160.00	\$5400.00
Total Cost:			\$8640.00	\$21600.00

Total Cost

The team estimated the work hours for this project to be 108 hours with each member earning \$20.00 per hour. The dream salary for the team is \$21600.00

Total project cost:

$$\$229.14 \text{ (Parts)} + \$21600.00 \text{ (Labor)} = \$21829.14$$



Microsoft Project Schedule



ID	Task Name	Duration	Start	Finish	Resource Names
1	Senior Design Project	44.75 days?	Wed 9/14/05	Tue 11/15/05	
2	Meetings	1 day	Wed 9/14/05	Wed 9/14/05	
3	Monday	3 hrs	Wed 9/14/05	Wed 9/14/05	Dinesh,Enhung,Sun,Vinodh
4	Wednesday	5 hrs	Wed 9/14/05	Wed 9/14/05	Dinesh,Enhung,Sun,Vinodh
5	Progress Report	0.09 days	Thu 9/15/05	Thu 9/15/05	
6	Weekly written report	0.75 hrs	Thu 9/15/05	Thu 9/15/05	Dinesh,Enhung,Sun,Vinodh
7	Research	9.5 days	Thu 9/15/05	Wed 9/28/05	
8	Library	3 days	Thu 9/15/05	Mon 9/19/05	Dinesh
9	Internet	1 day	Thu 9/15/05	Thu 9/15/05	Sun
10	Ideas	0.5 days	Thu 9/15/05	Thu 9/15/05	Vinodh,Dinesh,Enhung,Sun
11	Budget	4 days	Thu 9/15/05	Wed 9/21/05	Enhung
12	Materials	4 days	Thu 9/15/05	Wed 9/21/05	Enhung
13	Product Requirements	4 days	Wed 9/21/05	Tue 9/27/05	Dinesh
14	Design Alternatives	5 days	Wed 9/21/05	Wed 9/28/05	Vinodh
15	Design Specifications	5 days	Wed 9/21/05	Wed 9/28/05	Sun
16	Proposal	9 days?	Wed 9/28/05	Tue 10/11/05	
17	Written Report	8 days?	Wed 9/28/05	Mon 10/10/05	
18	Introduction	1 day?	Wed 9/28/05	Thu 9/29/05	Enhung
19	Objectives	1 day?	Thu 9/29/05	Fri 9/30/05	Vinodh
20	Description	1 day?	Fri 9/30/05	Mon 10/3/05	Dinesh
21	Plan of action	1 day?	Mon 10/3/05	Tue 10/4/05	Dinesh
22	Verification	1 day?	Tue 10/4/05	Wed 10/5/05	Vinodh
23	Cost analysis	1 day?	Wed 10/5/05	Thu 10/6/05	Enhung
24	Schedule	1 day?	Thu 10/6/05	Fri 10/7/05	Sun
25	Questions	1 day?	Fri 10/7/05	Mon 10/10/05	Sun
26	In class presentation	1 day	Mon 10/10/05	Tue 10/11/05	Dinesh,Enhung,Sun,Vinodh
27	Purchase Parts	1.25 days?	Tue 10/11/05	Wed 10/12/05	
28	Contact Vendors	0.25 days?	Tue 10/11/05	Tue 10/11/05	Dinesh,Enhung,Sun,Vinodh
29	Visit EPO	1 day?	Tue 10/11/05	Wed 10/12/05	Dinesh,Enhung,Sun,Vinodh
30	Construction	16 days?	Wed 10/12/05	Thu 11/3/05	
31	Programming the 8051	10 days	Wed 10/12/05	Wed 10/26/05	Sun
32	Code to compare fingerprint	1 day?	Wed 10/26/05	Thu 10/27/05	Dinesh
33	Code to interface 8051 to fingerprint	1 day?	Thu 10/27/05	Fri 10/28/05	Enhung
34	Control door lock using 8051	1 day?	Fri 10/28/05	Mon 10/31/05	Vinodh
35	Control motor	1 day?	Mon 10/31/05	Tue 11/1/05	Sun
36	Build wooden door	1 day?	Tue 11/1/05	Wed 11/2/05	Dinesh,Vinodh
37	Assemble parts together	1 day?	Wed 11/2/05	Thu 11/3/05	Sun,Dinesh,Enhung,Vinodh
38	Final Report	44.75 days?	Wed 9/14/05	Tue 11/15/05	
39	Final written report	8 days?	Thu 11/3/05	Tue 11/15/05	
40	Introduction	1 day?	Thu 11/3/05	Fri 11/4/05	Enhung
41	Objectives	1 day?	Fri 11/4/05	Mon 11/7/05	Vinodh
42	Description	1 day?	Mon 11/7/05	Tue 11/8/05	Dinesh
43	Plan of action	1 day?	Tue 11/8/05	Wed 11/9/05	Dinesh
44	Verification	1 day?	Wed 11/9/05	Thu 11/10/05	Vinodh
45	Cost analysis	1 day?	Thu 11/10/05	Fri 11/11/05	Enhung
46	Schedule	1 day?	Fri 11/11/05	Mon 11/14/05	Sun
47	Questions	1 day?	Mon 11/14/05	Tue 11/15/05	Sun
48	In class presentation	1 day?	Wed 9/14/05	Wed 9/14/05	

Any Questions?

