

DESIGNING A SYSTEM FOR VERIFICATION PROCESS OF INDIVIDUAL IDENTIFICATION IN STUDENT PICK UP MANAGEMENT SYSTEM – APPLICATION ON ELEMENTARY SCHOOLS

Dr. Mozamel M. Saeed¹, Salman Bin Abdul-Aziz University, collage of science, Dept. of computer science, KSA;
Dr. Abdulwahid A. Fadulalh², Salman Bin Abdul-Aziz University, collage of science, KSA;
Mesfer A. Al Duhayyim³, Salman Bin Abdul-Aziz University, collage of science, Dept. of computer science, KSA.

Abstract :Security is one of the necessities of daily life for individuals and societies. Each system or organization seeks to increase the level of security in order to protect personnel and its properties. In this paper, we designed a full system for SPMS and we focused on the verification process only because of its importance and being considered as a pivot of the whole system. We focus on one of the important people in the society, who are elementary school students, especially when the students dismiss the school in the releasing time, and who is going to take them home after school. From this point, we try to suggest solutions by making mechanism for student's dismissal.

Keywords: *Students, Individuals, Elementary Schools, Verification, Individual pick up.*

Introduction

Educational process is one of the most important stages of human evolution. It is through educational process the individual will be formulated and prepared to actively participate in life fields His/Her success at this stage reflects growth and development on the community. Because of that, it has to maintain the student and provide security and safety to him at all stages of education, particularly in elementary stage. In elementary schools, there are many factors that each school must provide for its students such as security. In fact, most of the elementary schools don't have a secure process for picking up students. Therefore, risks increase, such as due to this specific problem such as non-custody divorced parents, kidnappers, or terrorists, etc. This means that schools don't have process to identify the individuals pick up. In addition, many individuals complain about the traffic congestion because some of them have jobs, and there is not enough time to come back to work.

In fact, most of the elementary schools rely on the traditional way to release students to dismiss the school and go

through the open gates and let the students go with their individuals or the school bus randomly. In the traditional way, there is a lack of verifying the individual who would take the student. This method is lead to a lot of risks such as kidnapping and so on. From this point, it is necessary to have a mechanism for the school dismissal procedure. This procedure will verify the individuals when they pick up their students. When we apply this level of security principles, we will come up with these advantages that provide safety for students, confirm the individual's identity, good performance in dismissal time and store and save time out of each student.

SPMS Architecture

SPMS will be used for:

- The registration office: registering the approved pick up individuals and giving them cards with barcodes.
- Each individual has a unique ID card with barcodes.
- Registration office takes the individuals pick up information, their cars information and their children information as well.
- The program can register, save, update, delete, add, print and store the individuals' pick up information into the database.
- The registers can retrieve and interact back and forth with database.
- The security: using SPMS program to verify the approved individuals.
- There are unexpected events could that happen for example if the individuals pick up can't come to school one day, there is approved pick up individuals in SPMS lists.

SPMS Tools

- A barcode reader: using barcode readers outside the building to make the individuals pass their IDs to verify themselves to get access in the system.

- One camera: once the individuals pass the IDs, the camera open and take a picture of them immediately and store it into a database.
- Two touchscreens: using two touchscreens, one for the security to process the system and another for secretary to control release the student to the security to go out.
- A computer: to store individuals, students and verifications information into database.
- Cards Sample: to give each individual an ID card to use it when picking the student.

SPMS Procedure

SPMS software program is designed to protect the children from the strangers when they are dismissed from the school. SPMS is more interactive and efficient. It is more organized and easy to use by the officials. SPMS program can be used to verify the approved individuals and their cars with the following process:

- The approved individuals such as parents use their barcode ID cards to verify themselves by passing them in front of the barcode readers.
- Once they pass them, the camera, which is above of the barcode readers, will open and take a picture of them immediately. Then, the security can see the individuals pick up and see if it's approved or not.
- If it is approved, the security sends a message to the secretary to let the student go out.
- If it is not, one of the faculty checks the individual's ID card that is given by the registration office.
- The secretary uses SPMS program to get access from the security and track the student pick up.
- The secretary gets a message from the security that says "the parent is here, make the student ready to go".
- The secretary organizes student's dismissals and prevents them to go outside until they get the message and give them the access to go. Figure (1) below illustrates verifications process.

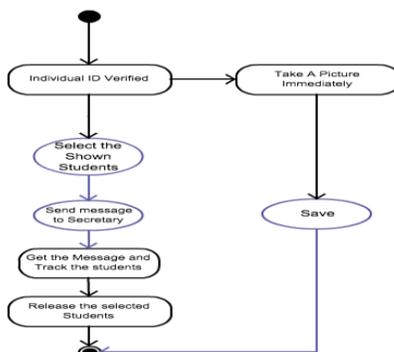


Fig (1): verifications process

SPMS System Application

The idea is based on designing an integrated system for the students pick up management system in the releasing time is built through the system's screens. From the system screens, security men can access and work on the queries and do all the procedures that associated with students who are enrolled in the system as follows:



Figure (2): Shows the validity of the system screen

The above figure shows the validity page of the system where you can write the username and password.

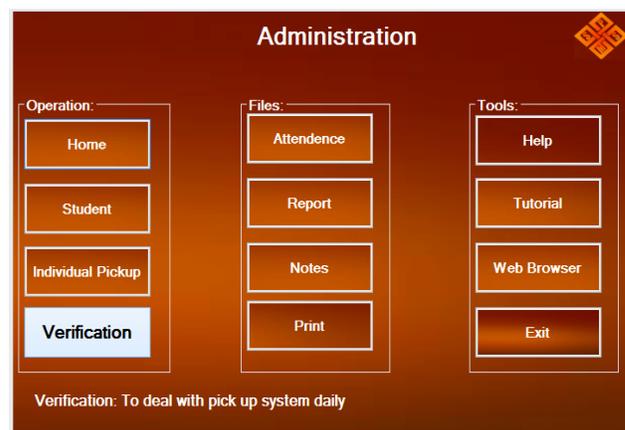


Figure (3): Shows the main page for the system

It is considered as the system interface, and it is divided into three main elements:

- Operation: it consists of the buttons (home) which is to return to the validity page, (student) button consists of student operations such as add new student, update student information, search about the student, delete student from

database and so on. (Individual Pickup) button is used to do some operations on individual's information such as the students. (Verification) button to release the students.

- Files: it consists of a group of buttons, which are (Attendance) button that is related to the student attendances; (Report) button is used to make daily reports for all the operations, (Notes) button is used to write some notes when it is needed, (Print) button is used to print Individual ID bar-codes.

- Tools: it consists of a group of buttons, which are (Help) button to contact the office administration when it is needed, (Tutorial) button consists of user manual for the end user, (Web Browser) button for the Internet searching, (Exit) button is used to exit the system.



Figure (4): Shows the process of releasing the students

In this figure, the individuals use ID barcode to verify by passing it on barcode readers. Once the individual passes the ID card, it will show his/her information on the screen, and it will take a picture of him/her immediately. Then, security will compare the stored picture that shown in the ID card and the taken picture. After that, when the pictures are equal and approved, the security staff will select the shown student, and all the information will be explored on the screen. Finally, the security staff will send a message to the secretary to release the students.

Conclusion

This paper reflects the importance of verification process of individuals in elementary school when they pick up their students, and it plays main role in protecting and preserving the student's integrity of the risk probabilities. The verification process is a part of an integrated system which is student pick up management that has been designed by the researcher because there are obvious gaps in this area. This paper summarizes that the system contributed in the verification process of increasing the security and safety of the stu-

dents, which is reflected positively on the level of performance and contributed in the community development.

Appendix

```
Imports System.Data
Imports System.Data.OleDb
Imports System.Net
Imports System.Net.Mail
Public Class frmAdminLog
    Public connection As OleDb.OleDbConnection
    Public command As OleDb.OleDbCommand
    Public adaptor As OleDb.OleDbDataAdapter
```

```
Public dataset As New DataSet
Public RecordCount As Integer
Dim Username As String
Dim Password As String
Public I As Integer
```

```
Private Sub OK_Click(ByVal sender As Sys-
tem.Object, ByVal e As System.EventArgs) Han-
dles OK.Click
```

Try

```
    connection = New
OleDbConnection("Provider=Microsoft.Jet.OLEDB.
4.0;Data
Source=C:\Users\MesferAlduhayyim\Documents\SPM
Sdatabase1.mdb")
    adaptor = New OleDbDataAdapter("
select * from Users where Username=' " &
UsernameTextBox.Text & "'And Password=' " &
PasswordTextBox.Text & "';", connection)
    connection.Open()

    dataset = New DataSet
    RecordCount = adap-
tor.Fill(dataset, "0")
    Dim rows = dataset.Tables(0).Rows
    If rows.Count > 0 Then
        Dim row = rows.Item(0)
        Dim role = row.Item("Role")
        If role.Equals("Admin") Then
            frmAdmins.Show()
        ElseIf role.Equals("Security")
Then
            frmVerification.Show()
        ElseIf
role.Equals("Secretary") Then
        End If

        Me.Hide()
```

```

Else
    lblShow.Text = "Incorrect log-
in, Please check username and password"
    lblShow.Visible = True
    lblShow.BackColor = Col-
or.White
    Timer1.Interval = 4000
    Timer1.Start()
    Dim fontsize As New
Font("Microsoft Sans Serif", 10,
FontStyle.Bold)
    lblShow.Font = fontsize
    UsernameTextBox.Clear()
    PasswordTextBox.Clear()
End If

    connection.Close()
Catch OEE As OleDb.OleDbException
    MessageBox.Show("#1" &
OEE.Message, "Error")
Catch IOE As InvalidOperationException
    MessageBox.Show("#2" &
IOE.Message, "Error")
End Try

End Sub

Public IndivPic1 As String

    Dim FilePath1 As String
Private Sub txtPickSearch_KeyPress(sender As
Object, e As Sys-
tem.Windows.Forms.KeyPressEventArgs) Handles
txtPickSearch.KeyPress
    If ((e.KeyChar < Chr(48) And
(e.KeyChar > Chr(13)) Or (e.KeyChar >
Chr(57)))) Then
        e.KeyChar = "" 'discard ch

    End If
    If e.KeyChar = Chr(Keys.Enter) Then

        Try

            If txtPickSearch.Text = "" Or
txtPickSearch.TextLength <> 9 Then

                Dim fontsize As New
Font("Microsoft Sans Serif", 11
FontStyle.Regular)
                Label2.Font = fontsize
                Label2.Text = "The search
text is empty Please fill it or The ID Number
must be 9 digits"
                Label2.BackColor = Col-
or.White
                Label2.ForeColor = Col-
or.Red
                btnSelect.Enabled = False
                Label2.Visible = True
                Timer2.Interval = 4000
                Timer2.Start()
                txtPickSearch.Focus()
            Else
                pcPickImage.Image =
imagez.ToBitmap()
                If (Not Sys-
tem.IO.Directory.Exists("C:\Verification"))
                Then
                    Sys-
tem.IO.Directory.CreateDirectory("C:\Verificat
ion")
                End If
                If (pcPickImage.Image
IsNot Nothing) Then
                    pcPickImage.Image.Save("C:\Verification\" &
txtPickSearch.Text & ".jpg", Sys-
tem.Drawing.Imaging.ImageFormat.Jpeg)
                End If
                Dim fontsize As New
Font("Microsoft Sans Serif", 11,
FontStyle.Regular)
                Label5.Font = fontsize
                Label5.Text = "Please
choose the student regarding to the individual
request"
                Label5.BackColor = Col-
or.White
                Label5.ForeColor = Col-
or.Red
                Label5.Visible = True
                Timer2.Interval = 4000
                Timer2.Start()
                connection = New
OleDb.OleDbConnection("Provider=Microsoft.Jet.
OLEDB.4.0;Data
Source=C:\Users\MesferAlduhayyim\Documents\SPM
Sdatabase1.mdb")
                connection.Open()
            End If
        End Try
    End If
End Sub

```



```

1stPickupList.Items.Clear()
    adaptor = New
OleDb.OleDbDataAdapter("SELECT * From Pickup
where IndivID =" & txtPickSearch.Text, connec-
tion)
    dataset = New DataSet
    RecordCount = adap-
tor.Fill(dataset, "SPMSdatabase1")
    ReDim Rela-
tion(RecordCount)
    If RecordCount <> 0 Then
        For Me.N = 0 To
RecordCount - 1
            1stPickupList.Items.Add(dataset.Tables("SPMSda
tabase1").Rows(N).Item("StudentID"))
                txtRelsh.Text =
da-
taset.Tables("SPMSdatabase1").Rows(N).Item("Re
lationship")
                Relation(N) =
txtRelsh.Text
                    Next N
                Else
                    Label2.Font = fontsize
                    Label2.Text = "The
search text is empty Please fill it or The ID
Number must be 9 digits"
                    Label2.BackColor =
Color.White
                    Label2.ForeColor =
Color.Red
                    Label2.Visible = True
                    Timer2.Interval = 4000
                    Timer2.Start()
                    txtPickSearch.Focus()
                End If
                adaptor = New
OleDb.OleDbDataAdapter("SELECT * From Individ-
uals where IndivID =" & txtPickSearch.Text,
connection)
                dataset = New DataSet
                RecordCount = adap-
tor.Fill(dataset, "SPMSdatabase1")
                If RecordCount <> 0 Then
                    For Me.I = 0 To
RecordCount - 1
                        txtIndivID.Text =
da-
taset.Tables("SPMSdatabase1").Rows(I).Item("In
divID")
                        txtIndivFName.Text
= da-

```

```

taset.Tables("SPMSdatabase1").Rows(I).Item("In
divFName")
                txtIndivEmail.Text
= da-
taset.Tables("SPMSdatabase1").Rows(I).Item("In
divEmail")
                pcIndivPhoto.Image
= Im-
age.FromFile(dataset.Tables("SPMSdatabase1").R
ows(I).Item("IndivPhotos"))
                    Next I
                Else
                    Label2.Font = fontsize
                    Label2.Text = "The
search text is empty Please fill it or The ID
Number must be 9 digits"
                    Label2.BackColor =
Color.White
                    Label2.ForeColor =
Color.Red
                    Label2.Visible = True
                    Timer2.Interval = 4000
                    Timer2.Start()
                    txtPickSearch.Focus()
                End If
                adaptor = New
OleDb.OleDbDataAdapter("SELECT * From
StudentSearch where IndivID =" &
txtPickSearch.Text, connection)
                dataset = New DataSet
                RecordCount = adap-
tor.Fill(dataset, "SPMSdatabase1")
                ReDim
StudentID1(RecordCount)
                ReDim
StudentFName(RecordCount)
                ReDim
StudentLName(RecordCount)
                ReDim
StudentGrade(RecordCount)
                ReDim
StudentPic(RecordCount)
                ReDim
StudentID1(RecordCount)
                If RecordCount <> 0 Then
                    For Me.x = 0 To
RecordCount - 1
                        txtID.Text= da-
taset.Tables("SPMSdatabase1").Rows(x).Item("St
udentID")
                        txtFName.Text =
da-
taset.Tables("SPMSdatabase1").Rows(x).Item("Fn
ame")
                        txtLName.Text =
da-

```

```

taset.Tables("SPMSdatabase1").Rows(x).Item("Lname")
        txtGrade.Text =
da-
taset.Tables("SPMSdatabase1").Rows(x).Item("Grade")
        StudentPic(x) =
da-
taset.Tables("SPMSdatabase1").Rows(x).Item("Photos")
        pcPhoto.Image =
Im-
age.FromFile(dataset.Tables("SPMSdatabase1").Rows(x).Item("Photos"))
        pcPhoto.Enabled =
True
        StudentID1(x) =
txtID.Text
        StudentFName(x) =
txtFName.Text
        StudentLName(x) =
txtLName.Text
        StudentGrade(x) =
txtGrade.Text
        Next x
Else
        Label2.Font = fontsize
        Label2.Text = "The
search text is empty Please fill it or The ID
Number must be 9 digits"
        Label2.BackColor =
Color.White
        Label2.ForeColor =
Color.Red
        Label2.Visible = True
        Timer2.Interval = 4000
        Timer2.Start()
        txtPickSearch.Focus()
End If
End If
Catch oledbexception As
OleDb.OleDbException
MessageBox.Show(oledbexception.Message, "Access Exception")
        connection.Close()
End Try
End If
End Sub

```

```

Private Sub btnSave_Click(sender As System.Object, e As System.EventArgs) Handles
btnSave.Click
        Dim s As String = ""
        If lstDailyPickup.Items.Count < 1 Or
txtIndivID.Text = "" Or txtPickSearch.Text =
"" Then
                MsgBox("Error! All fields must be
filled", MsgBoxStyle.Critical, "SPMS")
        Else
                For Me.N = 0 To
lstDailyPickup.Items.Count - 1
                        Try
                                connection = New
OleDb.OleDbConnection("Provider=Microsoft.Jet.
OLEDB.4.0;Data
Source=C:\Users\MesferAlduhayyim\Documents\SPM
Sdatabase1.mdb")
                                connection.Open()
                                adaptor = New
OleDb.OleDbDataAdapter("SELECT * From History
", connection)
                                dataset = New DataSet
                                RecordCount = adap-
tor.Fill(dataset, "SPMSdatabase1")
                                If da-
taset.Tables("SPMSdatabase1").Rows(N).Item("St
atus") = "Picked" Then
                                        End If
                                CmdI = "INSERT into Histo-
ry (IndivID, StudentID, IndivName, IndivEmail,
PickupDate, PickupTime, Status) VALUES ("
                                CmdI &= "" &
txtIndivID.Text & "" , ""
                                CmdI &= "" &
lstDailyPickup.Items(N) & "" , ""
                                CmdI &= "" &
txtIndivFName.Text & "" , ""
                                CmdI &= "" &
txtIndivEmail.Text & "" , ""

```

```

txtPickupDate.Text & "'' , "
& "'' , "
"')"

CmdI &= "''" & txtTime.Text

CmdI &= "''" & "Picked" &

Dim oleCmd As New
OleDbCommand(CmdI, connection)
oleCmd.CommandType =
CommandType.Text
oleCmd.ExecuteNonQuery()

Dim fontsize As New
Font("Microsoft Sans Serif", 14,
FontStyle.Regular)
Label6.Font = fontsize
Label6.Text = "The stu-
dents has been released"
Label6.BackColor = Col-
or.White
Label6.ForeColor = Col-
or.Green

Label6.Visible = True
Timer2.Interval = 4000
Timer2.Start()

Catch OEE As
OleDb.OleDbException
s &=
lstDailyPickup.Items(N)

Catch IOE As
InvalidOperationException
s &=
lstDailyPickup.Items(N)

Finally

connection.Close()
End Try

Next N

End If

lstPickupList.Items.Clear()
lstDailyPickup.Items.Clear()
txtIndivID.Text = ""
txtIndivFName.Text = ""
txtIndivEmail.Text = ""
txtRelsh.Text = ""
txtPickSearch.Text = ""
txtLName.Text = ""

```

```

txtID.Text = ""
txtGrade.Text = ""
txtFName.Text = ""
pcIndivPhoto.Image = Nothing
pcPhoto.Image = Nothing
pcPickImage.Image = Nothing
Try
connection = New
OleDb.OleDbConnection("Provider=Microsoft.Jet.
OLEDB.4.0;Data
Source=C:\Users\MesferAlduhayyim\Documents\SPM
Sdatabase1.mdb")
connection.Open()

adaptor = New
OleDb.OleDbDataAdapter("SELECT * From
Attendance where PickupDate= Date()", connec-
tion)

dataset = New DataSet

lstLeave.Items.Clear()
Dim RecordCount As Integer

RecordCount = adap-
tor.Fill(dataset, "SPMSdatabase1")

For Me.N = 0 To RecordCount - 1
Dim a As String = (da-
taset.Tables("SPMSdatabase1").Rows(N).Item("St-
udentID"))
Dim b As String = (da-
taset.Tables("SPMSdatabase1").Rows(N).Item("In-
divLName"))
Dim c As String = (da-
taset.Tables("SPMSdatabase1").Rows(N).Item("Pi-
ckupTime"))

lstLeave.Items.Add(String.Format("{0,-
15}{1,0}{2,11}", a, b, c))

Next N

Catch oledbexception As
OleDb.OleDbException
MessageBox.Show(oledbexception.Message, "Ac-
cess Exception")
End Try
End Sub

```

References

[1] Abby Barry Bergman, Judy Powers, Michael L. Pul-
len , "The Survival Kit for the Elementary School
Principal ", (2010).



- [2] Bonnie Rochman, "School Security: Why It's So Hard to Keep Kids Safe ", Healthland time, Family Matters, December 18 2012.
- [3] HOMELAND SECURITY SCHOOL SAFETY <http://www.dhs.gov/school-safety>.
- [4] Kare L. Casto, Edge. Jennifer R. Audley, "In Our School", 2008.
- [5] Kern Alexander, M. David Alexander, "American Public School Law", 7th Edition 2012.
- [6] Mary Beth Marklein , "Schools tighten security after Sandy Hook", USA Today, September 2013.
- [7] McNair Elementary Drop-Off and Pick-Up Procedures 2014-2015 <http://www.dentonisd.org/domain/5718>.
- [8] National School Safety and Security Services, (1996) <http://www.schoolsecurity.org/trends/elementary-school-safety/>
- [9] OECD-US Department of Education collaboration, "School Safety and Security Lessons in Danger", Jan 2005. .
- [10] Richard E. Smith, "Elementary Information Security" , 3rd Edition 1992..
- [11] Robert Lynn Canady and Michael D. Rettig, "Elementary School Scheduling", 2013.
- [12] Scott Poland, "Proactive School Security and Emergency Preparedness Planning ", 2012.