



RESEARCH ARTICLE

AUTOMATIC PUBLIC DISTRIBUTION SYSTEM

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Abstract— Public distribution system is one of the widely controversial officers that involves corruption and illegal smuggling of goods. All these happen because every job in the ration shop involves manual work and there are no specific high-tech technologies to automate the job. One of the main concerns in the illegal entry in registers of the shop about the amount of products that are given to the people. Further there is always difficulty for the checking officials to go through the stocks available and the goods given in a register and find out irregularities. All the data allocation is done by the computer it can keep track of all the data and the whole process of data maintenance is taken care of by the PC and hence no chance of mistakes and virtually no manual work. Further any checking person can simple enter in and see the availability of the stock and other things by just giving a few clicks in the computer. Hence the whole process is completely error free and has a lot of advantages.

I. INTRODUCTION

Public Distribution System (PDS) is an Indian food security system. Established by the government of india under Ministry of Consumer Affairs, Food, and Public Distribution and managed jointly with state governments in India, it distributes subsidized food and non-food items to India's poor. Major commodities distributed include staple food grains, such as wheat, rice, sugar, and kerosene, through a network of Public distribution shops, also known as Ration shops established in several states across the country. Food Corporation of India, a Government-owned corporation, procures and maintains the Public Distribution System.

The targeted PDS is costly and gives rise to much corruption in the process of extricating the poor from those who are less needy. Today, India has the largest stock of grain in the world besides China, the government spends Rs.750 billion (\$13.6 billion) per year, almost 1 percent of GDP, yet 21% remain undernourished. Distribution of food grains to poor people throughout the country is managed by state governments. As of date there are about 4.99 lakh Fair Price Shops (FPS) across India.

1.1 Public distribution shop

A **public distribution shop** also known as **Fair Price Shop (FPS)**, part of India's Public Distribution System established by Government of India, is a kind of shop in India which is used to distribute rations at a subsidized price to the poor. As of date there are about 4.99 lakh Fair Price Shops (FPS) across India.

Locally these are known as "ration shop" and chiefly sell wheat, rice, kerosene and sugar at a price lower than the market price.

1.2 PDS IN INDIA

The history behind introduction of the PDS in India is rooted in famines and food scarcities during the entire period of British colonial rule in India. The first one was the Bengal famine of 1770. An estimated ten million people died in this famine that was essentially the consequence of plunder by the colonists of the East India Company. Between 1860 and 1910, there occurred twenty major famines and scarcities. The last famine in

British India was the Bengal famine of 1943 (Ghose, 1999, p. 355). Post-independence Indian agriculture followed the Bengal Famine of 1943 and food scarcity during the Second World War. Public intervention in Indian agriculture was in fact connected with food scarcity. By 1947, about 54 million people in urban areas were covered by statutory rationing and another 19 million by other forms of public distribution (Dantwala, 1993, p. 182). The measures that the GOI adopts for intervention in the food grains market are through procurement, buffer stocks, public distribution, imports, restrictions on internal movements of food grains, controls on exports etc (Sharma, 1992, p. 343). All these measures are not necessarily applied simultaneously.

1.3 EXISTING AUTOMATIC PUBLIC DISTRIBUTION SYSTEM

Ration is the main area where the corruption and illegal smuggling of good taken place.

This is because every job in the ration shop involves manual work and there is no specific hi-tech technology to automate the job.

The main concern is the illegal entry in register in register of the shop about the amount of products given to the consumes.

The second concern is the weight of the products that are given to the people.

II. SOFTWARE

The project mainly depends on the virtual basic software. The software uses this vb software which is very easy to create new user friendly projects with the basis of basic computer languages like C,C++.

The coding are developed by the basic used in c, c++

In this project we use more than 5 window screen which are having individual programs are as follows

2.1 Program

Form 1 is the home screen for the user where the user can be used to log in their account. It has the following items

- Two textbox
- Two labels
- One button
- One link label

Two textbox are involved in getting the inputs username and password. Two labels are used to represent the username and password text. One button which is used to login the user into their account. Whenever the user clicks the sign in button he/she has to accept the required entries in the required field are entered correctly. If this button is clicked means the form 2 will lead to open. The link label in the form 1 is used for administrator login for items loading. If it is clicked the admin entry form will be open.

2.1.1. Form 1:

```
Public Class Form1
```

```
Public n As Integer
```

```
Public defpswr(200) As Integer
```

```
Private Sub login_Click(sender As Object, e As EventArgs) Handles login.Click
```

```
Dim pwd, cnt As Integer
```

```
n = Un.Text
```

```
pwd = Pw.Text
```

```
For i = 0 To 100
```

```
defpswr(i) = n + 100
```

```
Next i
```

```
cnt = admin.count(n)
```

```
If cnt = 0 Then
```

```
If n < 101 Then
```

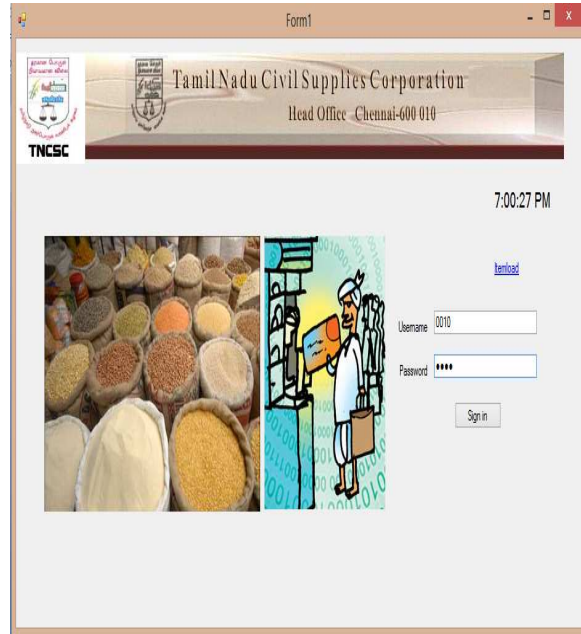
```
If n < 26 Then
```

```

        admin.card = "Green Card"
    ElseIf n < 51 Then
        admin.card = "White Card"
    ElseIf n < 76 Then
        admin.card = "AAY Card"
    Else
        admin.card = "No Commodities"
    End If
    Pw.Text = ""
    If pwd = defpswrd(n) Then
        Un.Text = ""
        Me.Hide()
        Dim SecondForm As New Form2
        SecondForm.Show()
    Else
        MsgBox("Password did not match.")
    End If

    Else
        MsgBox("username is invalid")
    End If
    Else
        MsgBox("You already used try again next month")
    End If
End Sub

```



```

Private Sub adminen_LinkClicked(sender As Object, e As LinkLabelLinkClickedEventArgs) Handles
adminen.LinkClicked
    Me.Hide()
    Dim secondForm As New adminentry
    secondForm.Show()
End Sub

Private Sub Timer1_Tick(sender As Object, e As EventArgs) Handles Timer1.Tick
    Label5.Text = TimeOfDay
End Sub

```

End Class

The user has to enter their username and password. Then he/she has to click the “sign in” button. Then the window will be change as the figure below

2.1.2. Form2:

Form2 consists of the personal details about user. It also includes 4 buttons which is used to proceed with the purchasing. The buttons are as follows

- Item status
- Rate
- Purchase items
- Sign out

Item status

When the item status button is clicked means the item status window is open. In this the user can see the total quantities and amount of quantity available for the user are displayed. From this the user can observe the amount of quantity available.

Rate

When the rate button is clicked in the form 2, the rate window is opened. In this the user can observe the corresponding rate for the items.

Purchase

When the purchase button is clicked in the form 2 the purchase window will be open. This is the main window for purchasing all the items. This window performs all calculations like amount calculation, checking the amount of quantities.

It includes 4 check boxes and 4 textboxes for the 4 items. It includes the 4 more textboxes for calculating amount in each item.

The user has to click the items what they want. Then they have to give the required quantity not more than that of available. The user has some facility to enter the item quantity what they want. They wont be force to buy full quantities.

The items will be poured by the plc kit. In this we are denoting the timing by changing the label "Processing" to "success"

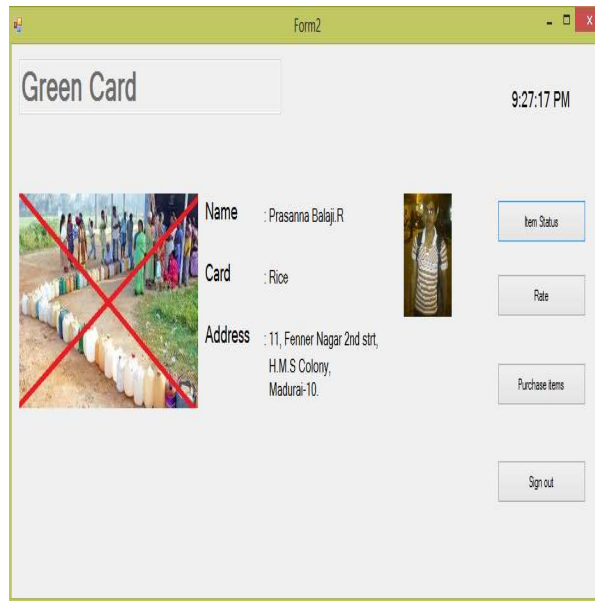
After all that the user has to sign out

For every month the administrator has to load the amount by entering the administrator password. The total available quantity is to be loaded. This is also limited to the user to buy only one tim

Public Class Form2

```

Public n1 As Integer = Form1.n
Private Sub Form2_Load(sender As Object, e As EventArgs) Handles MyBase.Load
    Dim card1 As String
    card1 = admin.card
    userid.Text = card1
    If card1 = "Green Card" Then
        namlbl.Text = ": Prasanna Balaji.R"
        crdlbl.Text = ": Rice"
        addrlbl.Text = ": 11, Fenner Nagar 2nd strt,"
        adrlbl1.Text = " H.M.S Colony,"
        adrlbl2.Text = " Madurai-10."
        pic1.Visible = True
        admin.q1a = 16
        admin.q2a = 21
        admin.q3a = 4
        admin.q4a = 11
    ElseIf card1 = "White Card" Then
        namlbl.Text = ": Baskar.M"
        crdlbl.Text = ": Sugar"
        addrlbl.Text = ": 91, LBK Nagar 2nd strt,"
        adrlbl1.Text = " H.M.S Colony,"
        adrlbl2.Text = " Madurai-10."
        pic2.Visible = True
        admin.q1a = 16
        admin.q2a = 16
        admin.q3a = 7
        admin.q4a = 11
    ElseIf card1 = "AAY Card" Then
        namlbl.Text = ": Soundara Pandi"
        crdlbl.Text = ": AAY"
        addrlbl.Text = ": 65, Jai Nagar 2nd strt,"
        adrlbl1.Text = " H.M.S Colony,"
        adrlbl2.Text = " Madurai-10."
        pic3.Visible = True
        admin.q1a = 16
        admin.q2a = 36
        admin.q3a = 4
        admin.q4a = 11
    Else
        namlbl.Text = ": Manikandan.T"
        crdlbl.Text = ": No Commodities"
        addrlbl.Text = ": 11/4, Sivakasi Nagar 2nd strt,"
        adrlbl1.Text = " H.M.S Colony,"
    
```



```

        adrlbl2.Text = " Madurai-10."
        Pic4.Visible = True
        puit.Visible = False
        ra.Visible = False
        admin.q1a = 0
        admin.q2a = 0
        admin.q3a = 0
        admin.q4a = 0
    End If

End Sub

Private Sub itst_Click(sender As Object, e As EventArgs) Handles itst.Click
    Me.Hide()
    Dim secondForm As New itemstatus
    secondForm.Show()
End Sub

Private Sub ra_Click(sender As Object, e As EventArgs) Handles ra.Click
    Me.Hide()
    Dim secondForm As New rate
    secondForm.Show()
End Sub

Private Sub puit_Click(sender As Object, e As EventArgs) Handles puit.Click
    Me.Hide()
    Dim secondForm As New Purchase
    secondForm.Show()
End Sub

Private Sub chpa_Click(sender As Object, e As EventArgs)
    Me.Hide()
    Dim secondForm As New Form1
    secondForm.Show()
End Sub

Private Sub siou_Click(sender As Object, e As EventArgs) Handles siou.Click
    Me.Hide()
    Dim secondForm As New Form1
    secondForm.Show()
End Sub

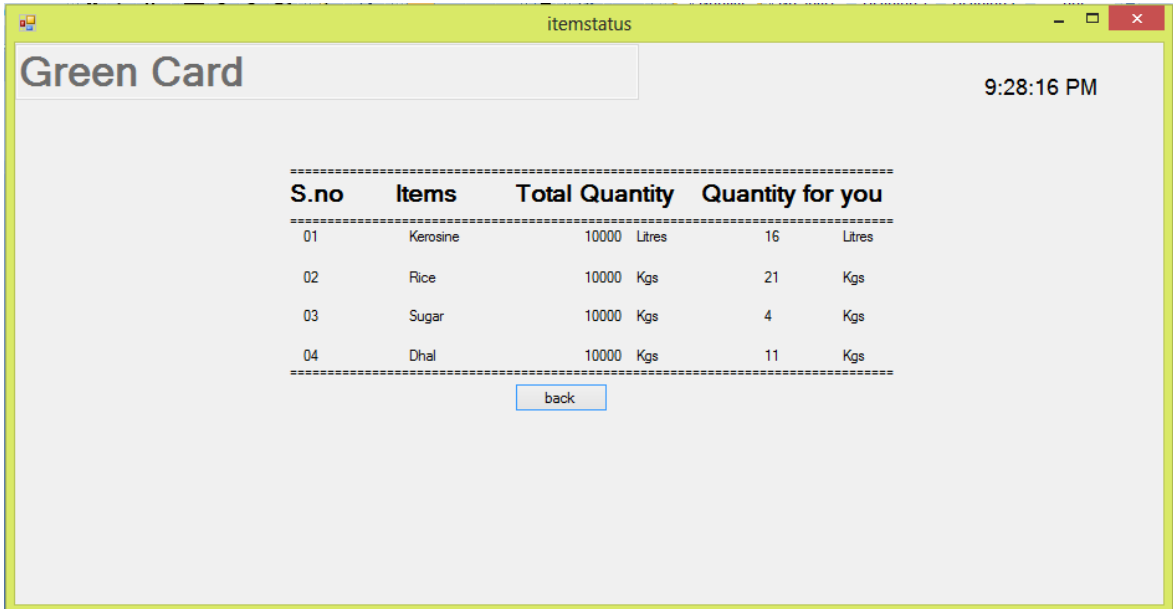
Private Sub Timer1_Tick(sender As Object, e As EventArgs) Handles Timer1.Tick
    Label5.Text = TimeOfDay
End Sub
End Class

```

This window consists of the personal details about the user. The user can click any of the following buttons in order to proceed with the purchasing

Item status	Shows the total quantity and the quantity available for user
Rate	Shows Rate for the items
Purchase	Leads to the window where the user can purchase their needs
Sign out	End the process and the user will be logged out

2.1.3. Item status



Public Class itemstatus

Private Sub itemstatus_Load(sender As Object, e As EventArgs) Handles MyBase.Load

Dim n1 As String = admin.card

useridit.Text = n1

Label12.Text = admin.q1

Label13.Text = admin.q2

Label14.Text = admin.q3

Label15.Text = admin.q4

Label32.Text = admin.q1a

Label31.Text = admin.q2a

Label30.Text = admin.q3a

Label29.Text = admin.q4a

End Sub

Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click

Me.Hide()

Dim secondForm As New Form2

secondForm.Show()

End Sub

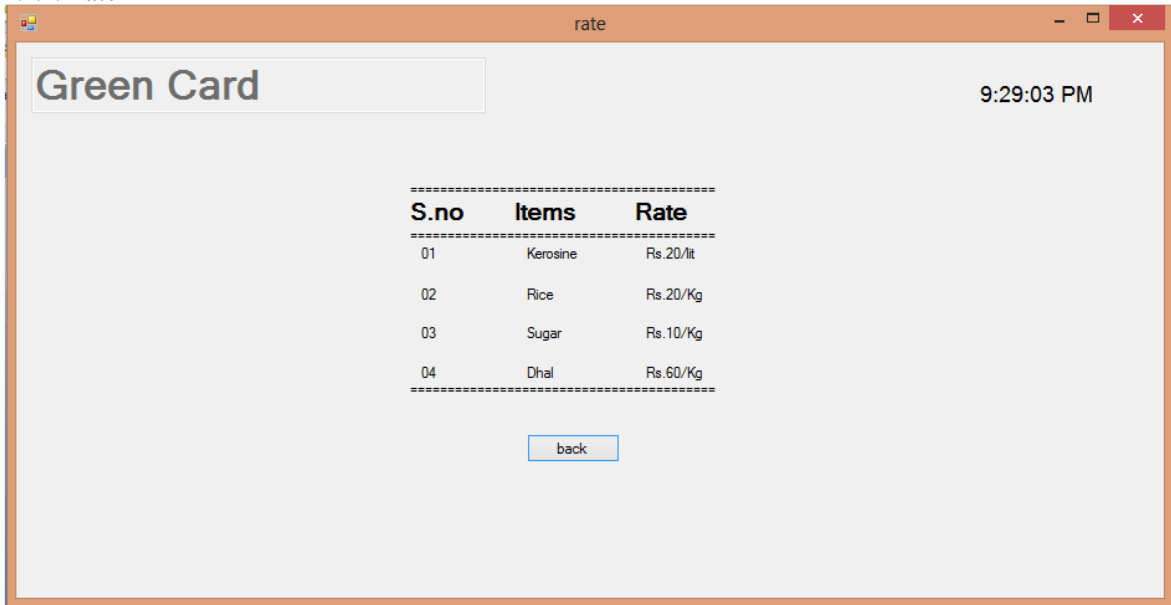
Private Sub Timer1_Tick(sender As Object, e As EventArgs) Handles Timer1.Tick

Label23.Text = TimeOfDay

End Sub

End Class

2.1.4. Rate



Public Class rate

Private Sub rate_Load(sender As Object, e As EventArgs) Handles MyBase.Load

Dim n1 As String = admin.card

useridra.Text = n1

End Sub

Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click

Me.Hide()

Dim secondForm As New Form2

secondForm.Show()

End Sub

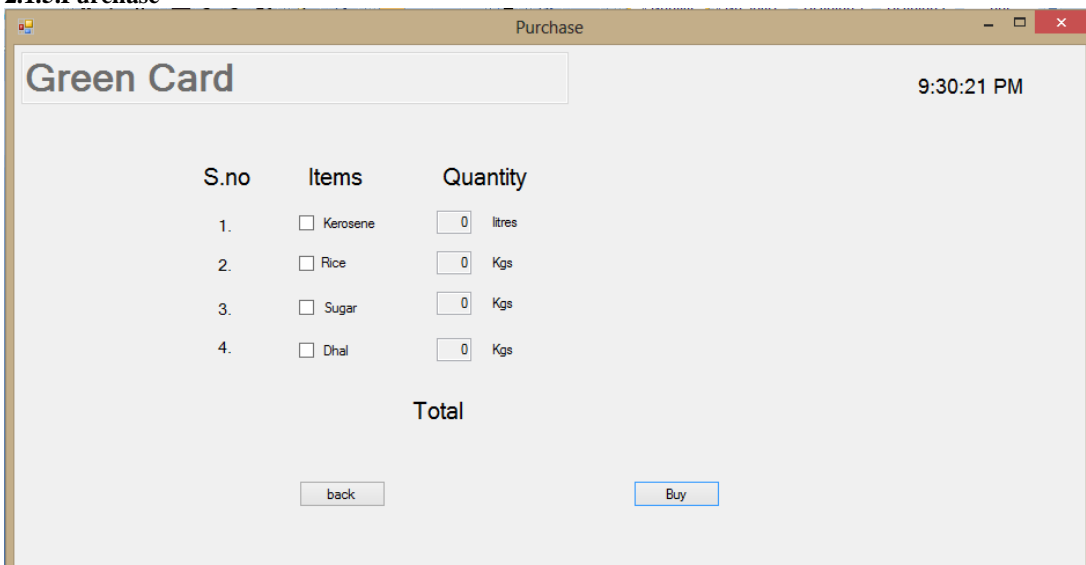
Private Sub Timer1_Tick(sender As Object, e As EventArgs) Handles Timer1.Tick

Label19.Text = TimeOfDay

End Sub

End Class

2.1.5.Purchase



```

Public Class Purchase
    Public qty1, qty2, qty3, qty4, qty1rs, qty2rs, qty3rs, qty4rs As Decimal
    Public n1 As Integer
    Public itemnumb1, itemnumb2, itemnumb3, itemnumb4 As Integer
    Private Sub purchase_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        Dim n2 As String = admin.card
        n1 = Form1.n
        useridpur.Text = n2
        kero1.Text = 0
        rice1.Text = 0
        suga1.Text = 0
        dhal1.Text = 0
    End Sub

    Private Sub purback_Click(sender As Object, e As EventArgs) Handles purback.Click
        Me.Hide()
        Dim secondForm As New Form2
        secondForm.Show()

    End Sub

    Private Sub kero_CheckedChanged(sender As Object, e As EventArgs) Handles kero.CheckedChanged
        If kero.CheckState = CheckState.Checked Then
            kero1.ReadOnly = False
            kero1.Text = ""
            itemnumb1 = 0
        Else
            kero1.ReadOnly = True
            kero1.Text = 0
        End If
    End Sub

    Private Sub rice_CheckedChanged(sender As Object, e As EventArgs) Handles rice.CheckedChanged
        If rice.CheckState = CheckState.Checked Then
            rice1.ReadOnly = False
            rice1.Text = ""
            itemnumb2 = 0
        Else
            rice1.ReadOnly = True
            rice1.Text = 0
        End If
    End Sub

    Private Sub suga_CheckedChanged(sender As Object, e As EventArgs) Handles suga.CheckedChanged
        If suga.CheckState = CheckState.Checked Then
            suga1.ReadOnly = False
            suga1.Text = ""
            itemnumb3 = 0
        Else
            suga1.ReadOnly = True
            suga1.Text = 0
        End If
    End Sub

    Private Sub dhal_CheckedChanged(sender As Object, e As EventArgs) Handles dhal.CheckedChanged
        If dhal.CheckState = CheckState.Checked Then
            dhal1.ReadOnly = False
            dhal1.Text = ""
            itemnumb4 = 0
        Else
    
```



```

        dhal1.ReadOnly = True
        dhal1.Text = 0
    End If
End Sub

```

```

Private Sub Buy_Click(sender As Object, e As EventArgs) Handles buy.Click

```

```

    Dim rate1 As Decimal = 20.0
    Dim rate2 As Decimal = 20.0
    Dim rate3 As Decimal = 10.0
    Dim rate4 As Decimal = 60.0
    Dim totalamt As Decimal

```

```

    useridpur.Text = "          BILL"
    admin.count(n1) = admin.count(n1) + 1

```

```

    buy.Visible = False
    Purback.Visible = False
    kero.Visible = False
    rice.Visible = False
    Suga.Visible = False
    dhal.Visible = False
    totalrs.Visible = True
    statuslbl.Visible = True
    Label18.Visible = True
    Label19.Visible = True
    Label20.Visible = True
    Label21.Visible = True

```

```

    amntlabel.Visible = True
    kerrslab.Visible = True
    ricerslab.Visible = True
    sugrslab.Visible = True
    dhalrslab.Visible = True
    Totalrslab.Visible = True
    totallab.Visible = True
    Sno.Visible = True
    itmlbl.Visible = True
    qtylbl.Visible = True
    statuslbl.Visible = True

```

```

    kero1.ReadOnly = True
    rice1.ReadOnly = True
    suga1.ReadOnly = True
    dhal1.ReadOnly = True

```

```

    kerors.Visible = True
    ricers.Visible = True
    sugars.Visible = True
    dhalrs.Visible = True

```

```

    qty1 = kero1.Text
    qty2 = rice1.Text
    qty3 = suga1.Text
    qty4 = dhal1.Text
    If qty1 < admin.q1 Then
        If qty1 < admin.q1a Then
            kerors.Text = qty1 * rate1
            admin.q1 = admin.q1 - qty1
            qty1rs = kerors.Text
        If qty1 > 0 Then

```

```

        Timer1.Interval = qty1 * 1000
        Timer1.Enabled = True
        label2.Text = "Processing"
    Else
        label2.Text = " Stopped"
    End If
Else
    MsgBox("Your Kerosene limit is only 15 litres")
    Timer1.Interval = 10
    kerors.Text = 0
End If

Else
    MsgBox(" Kerosene is not available with this quantity for you.")
    Timer1.Interval = 10
    kerors.Text = 0
End If

If qty2 < admin.q2 Then
    If qty2 < admin.q2a Then
        ricers.Text = qty2 * rate2
        admin.q2 = admin.q2 - qty2
        qty2rs = ricers.Text
        If qty2 > 0 Then
            Timer2.Interval = qty2 * 1000
            Timer2.Enabled = True
            label3.Text = "Processing"
        Else
            label3.Text = "Stopped"
        End If
    Else
        MsgBox("Your Rice limit is only 35 Kgs")
        Timer2.Interval = 10
        ricers.Text = 0
    End If
Else
    MsgBox(" Rice is not available with this quantity for you.")
    Timer2.Interval = 10
    ricers.Text = 0
End If

If qty3 < admin.q3 Then
    If qty3 < admin.q3a Then
        sugars.Text = qty3 * rate3
        admin.q3 = admin.q3 - qty3
        qty3rs = sugars.Text
        If qty3 > 0 Then
            Timer3.Interval = qty3 * 1000
            Timer3.Enabled = True
            label4.Text = "Processing"
        Else
            label4.Text = "Stopped"
        End If
    Else
        MsgBox("Your Sugar limit is only 3 Kgs")
        Timer3.Interval = 10
        sugars.Text = 0
    End If
Else
    MsgBox(" Sugar is not available with this quantity for you..")

```

```

    Timer3.Interval = 10
    sugars.Text = 0
End If

If qty4 < admin.q4 Then
    If qty4 < admin.q4a Then
        dhalrs.Text = qty4 * rate4
        admin.q4 = admin.q4 - qty4
        qty4rs = dhalrs.Text
        If qty4 > 0 Then
            Timer4.Interval = qty4 * 1000
            Timer4.Enabled = True
            Label13.Text = "Processing"
        Else
            Label13.Text = "Stopped"
        End If
    Else
        MsgBox("Your dhal limit is only 10 Kgs")
        Timer4.Interval = 10
        dhalrs.Text = 0
    End If
Else
    MsgBox(" Dhal is not available with this quantity for you..")
    Timer4.Interval = 10
    dhalrs.Text = 0
End If
totalamt = qty1rs + qty2rs + qty3rs + qty4rs
totalrs.Text = totalamt
Purok.Visible = True

End Sub

Private Sub purok_Click(sender As Object, e As EventArgs) Handles purok.Click
    Me.Hide()
    Dim secondForm As New Form2
    secondForm.Show()
End Sub

Private Sub Timer1_Tick(sender As Object, e As EventArgs) Handles Timer1.Tick
    If itemnumb1 = 0 Then
        itemnumb1 = itemnumb1 + 1
        label2.Text = "Success"
        Timer1.Enabled = False
    Else
        Timer1.Enabled = False
    End If
End Sub

Private Sub Timer2_Tick(sender As Object, e As EventArgs) Handles Timer2.Tick
    If itemnumb2 = 0 Then
        itemnumb2 = itemnumb2 + 1
        label3.Text = "Success"
        Timer2.Enabled = False
    Else
        Timer2.Enabled = False
    End If
End Sub

Private Sub Timer3_Tick(sender As Object, e As EventArgs) Handles Timer3.Tick
    If itemnumb3 = 0 Then

```

```

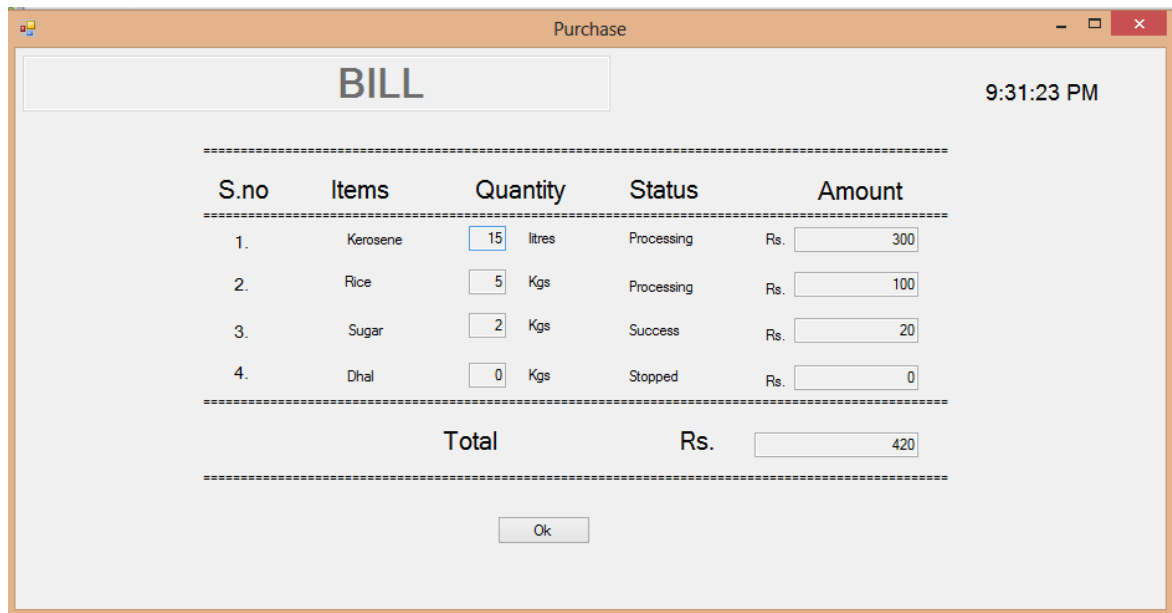
    itemnumb3 = itemnumb3 + 1
    label4.Text = "Success"
    Timer3.Enabled = False
Else
    Timer3.Enabled = False
End If
End Sub

Private Sub Timer4_Tick(sender As Object, e As EventArgs) Handles Timer4.Tick
    If itemnumb4 = 0 Then
        itemnumb4 = itemnumb4 + 1
        Label13.Text = "Success"
        Timer4.Enabled = False
    Else
        Timer4.Enabled = False
        Purok.Visible = True
    End If
End Sub

Private Sub Timer5_Tick(sender As Object, e As EventArgs) Handles Timer5.Tick
    Label5.Text = TimeOfDay
End Sub
End Class

```

The window when its complete



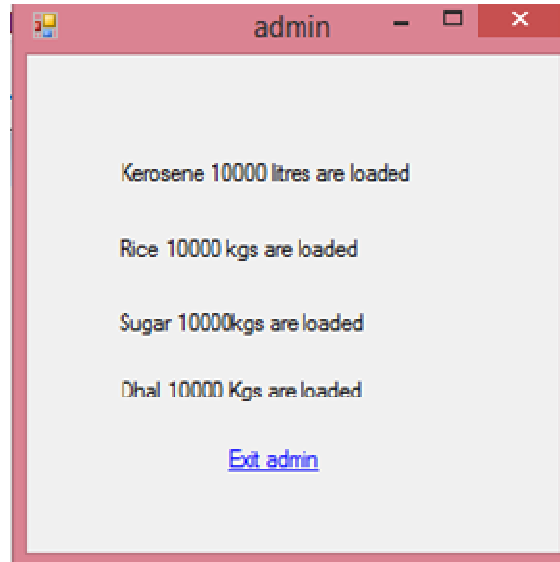
2.1.6. Administrator windows

Admin form:

This form is simply used to show the successful loading to the administrator. It includes one link label “ Exit admin”. This label is used to show the form1 when it is ckicked.

Admin entry form:

This is the form in which the administrator has to login with the special password to load the items with certain quantities in the machine

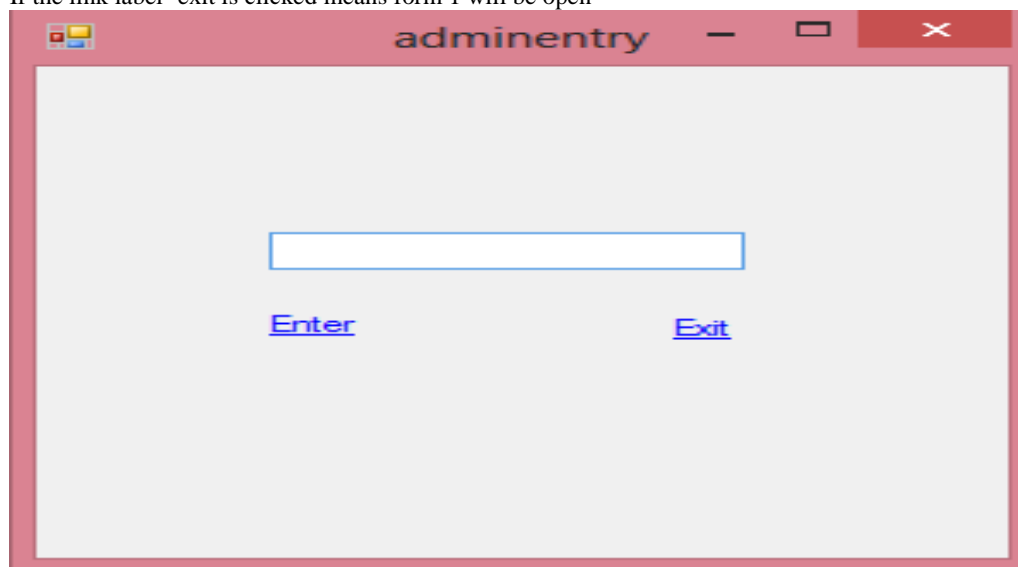


It includes a single text box and two link labels as follows

- Enter
- Exit

If the link label 'enter' is clicked the special password is checked with the given password if it is ok the admin form will be open and the items are loaded.

If the link label 'exit is clicked means form 1 will be open



Public Class adminentry

Private Sub LinkLabel1_LinkClicked(sender As Object, e As LinkLabelLinkClickedEventArgs) Handles LinkLabel1.LinkClicked

Dim adp As String = "Adminpassword"

If TextBox1.Text = adp Then

admin.q1 = 10000.0

admin.q2 = 10000.0

admin.q3 = 10000.0

admin.q4 = 10000.0

Me.Hide()

Dim secondForm As New admin

secondForm.Show()

Else

Me.Hide()

Dim secondForm As New Form1

secondForm.Show()

End If

End Sub

Private Sub LinkLabel2_LinkClicked(sender As Object, e As LinkLabelLinkClickedEventArgs) Handles LinkLabel2.LinkClicked

Me.Hide()

Dim secondForm As New Form1

secondForm.Show()

End Sub

End Class

Public Class admin

Public q1 As Decimal = 10000.0

Public q2 As Decimal = 10000.0

Public q3 As Decimal = 10000.0

Public q4 As Decimal = 10000.0

Public card As String

Public q1a As Decimal = 0.0

Public q2a As Decimal = 0.0

Public q3a As Decimal = 0.0

Public q4a As Decimal = 0.0

Public count(100) As Integer

Private Sub LinkLabel1_LinkClicked(sender As Object, e As LinkLabelLinkClickedEventArgs) Handles LinkLabel1.LinkClicked

Me.Hide()

Dim secondForm As New Form1

secondForm.Show()

End Sub

Private Sub admin_Load(sender As Object, e As EventArgs) Handles MyBase.Load

For i = 1 To 100

count(i) = 0

Next i

End Sub

End Class

And the last two forms are administrator forms. It is used to load the items with certain quantities every month it requires specific password called admin password. It can be explored by clicking the item load label in form1.

III. FUTURE WORK

- A PLC kit will be joined with this project to make this as run time project
- In this project we show a demo o/p with the status message “Processing” & “Success”
- The status “Processing” will be showed when the timer starts (Nob open).
- The status “Success” will be showed when the timer stops after certain time period (Nob closed).
- The status “Stopped” will be showed when the item is not selected and no nob will be open.

IV. BENEFITS OF AUTOMATIC PUBLIC DISTRIBUTION SYSTEM

The PDS system stands to benefit from the legislative, technology and administrative infrastructure that are being created for the implementation of the UID program. The key ones are explained below:

- **Better Identification** – Integration with the UID program will lead to better identification of individuals and families leading to better targeting and increased transparency and therefore better functioning of the system and increased public approval.
- **Offtake Authentication** – The UID database will maintain details of the beneficiary that can be updated from multiple sources. The PDS system can use this database for authentication of beneficiaries during the offtake recording process. A mechanism of verifying the ID of the person at the time of delivery of grains will help in improving the targeting of the grains.
- **Legislative Support** - The legislative support in form of the need for submitting the UID number for several transactions will push residents to acquire a UID. The most convenience mechanism will be for residents to get a ration card and this will create a supporting environment for computerization of ration cards.
- **Technology Support** – The UID program is putting together technology specifications and infrastructure to handle enrollment, storage and identity confirmation of all Indian residents. The PDS system can leverage this and rapidly move ahead with the enrollment process.
- **Duplicate and Ghost Detection** – The UIDAI will provide duplicate detection infrastructure to the PDS program. It can also assist in the development of special tools to assist in the assessment of eligibility of applicants.
- **Domestic LPG Linkage** – The issue of domestic LPG by Oil companies can be made conditional to the production of an APL (non-kerosene) ration cards making enrollment a compulsory affair.
- **Support for PDS reform** – The UID will become an important identifier in banking services and day-to-day needs of the resident. This can support the PDS reform by as an example providing the banking account number for a family to affect direct cash transfer.

V. CONCLUSION

I used the visual basic software for develop this software. This may leads our ration system into next generation. There will be a no corruption since all the transfer is systemized.