



ATTENDANCE SYSTEM FOR CITY TECH CET 4711

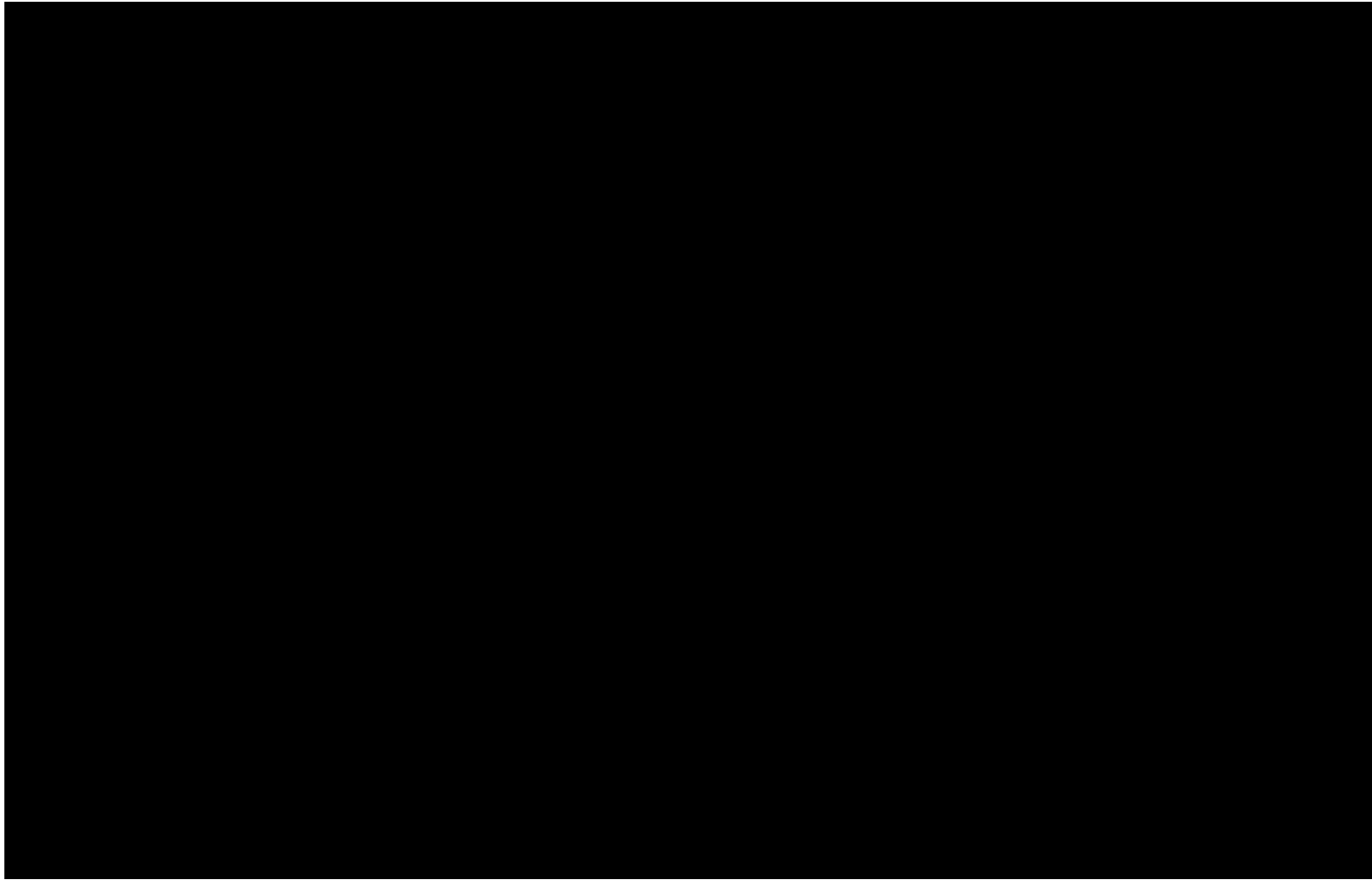
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SHORT CLIP



INSPIRATION

Our magnetic card reader was inspired by a **You-tube video** that we saw online but we **modified** it a little because in that video the card reader **was reading credit cards** and we modified this task to **read student identification card.**



PROJECT DESCRIPTION

Our task is to build an automated attendance system using a magnetic card reader.



THINGS WE NEED

Hardware

- Magnetic card reader
- Arduino solderless breadboard
- USB shield

Software

- Python program
- Excel
- Arduino
- DataNitro



1ST CASE SCENARIO

Imagine being a **teacher** and you wanted to capture attendance of each student that come to class daily.

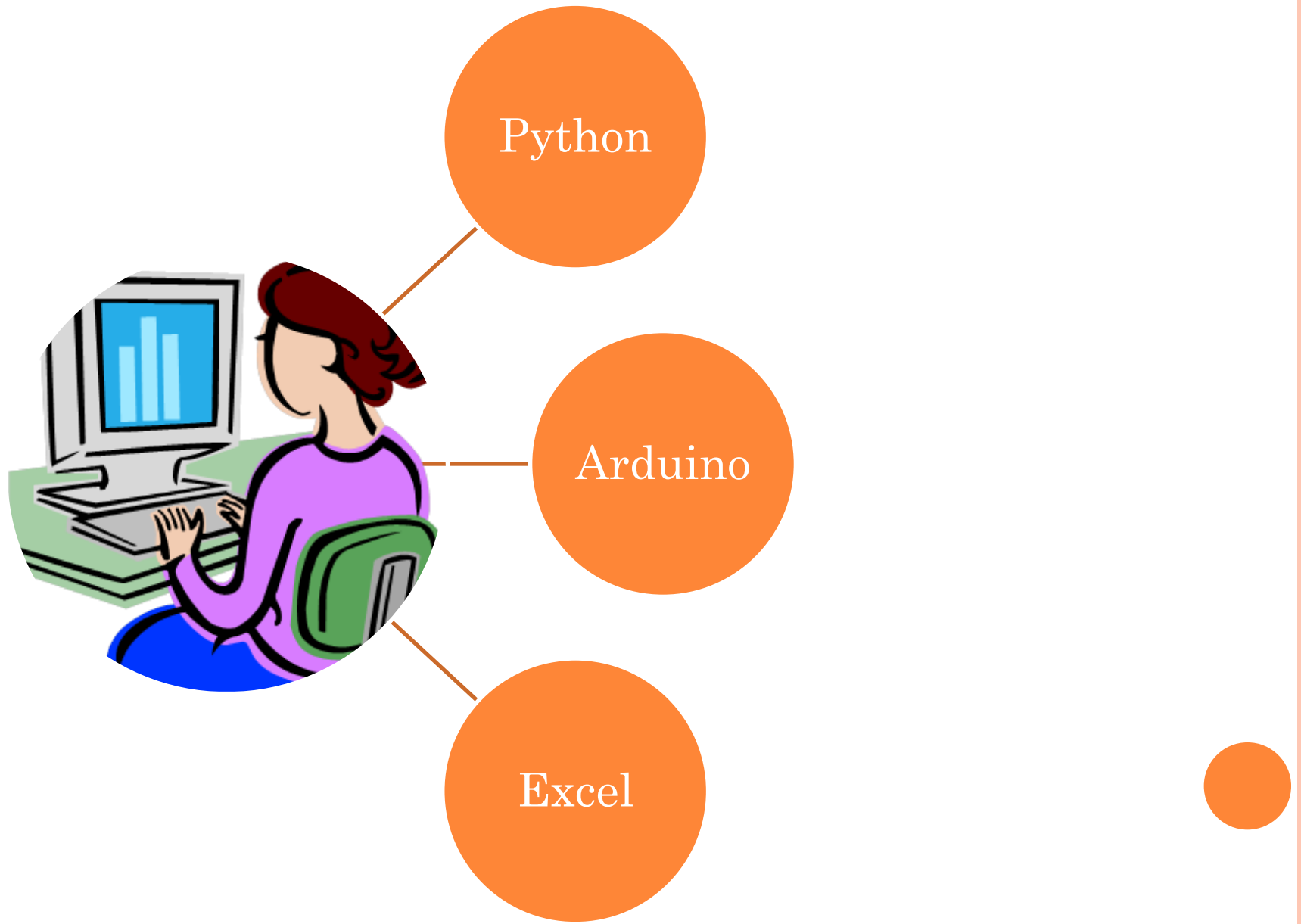
Instead of **taking** your time out your lesson to take **attendance**, why don't you have an **automatic** attendance taker? ●

WHAT ARE WE TRYING TO LEARN?

How can we use a magnetic card reader to function the way we want it to?



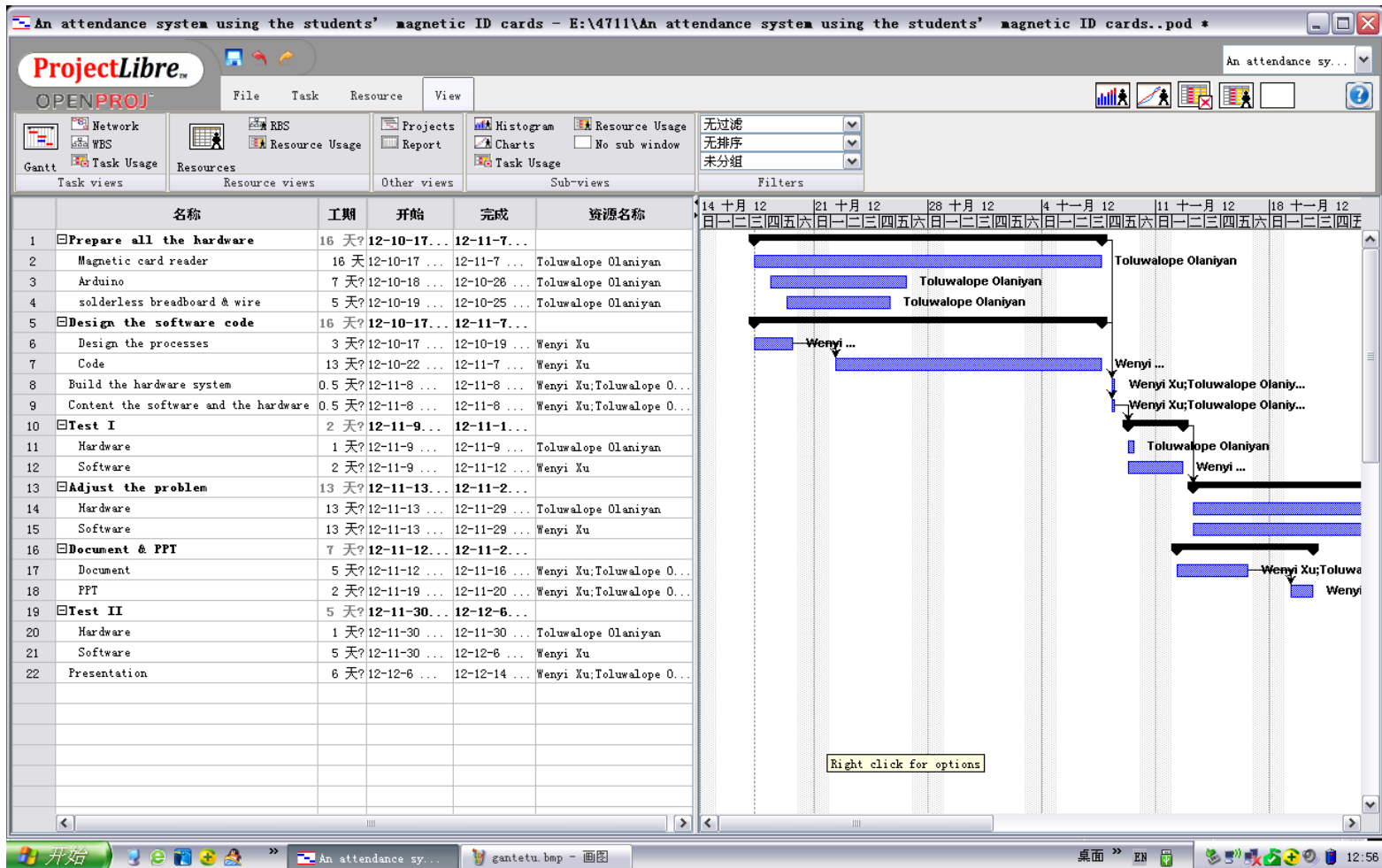
INTELLIGENCE INTERACTIVE SYSTEM



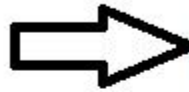
COST TABLE

Items Purchase	Price	Date Purchased	Date Received
Arduino Breadboard	\$31.99	10/9/12	10/13/12
USB Shield	\$25.00	10/9/12	10/14/12
Card Reader	\$40.00	10/1/12	10/9/12

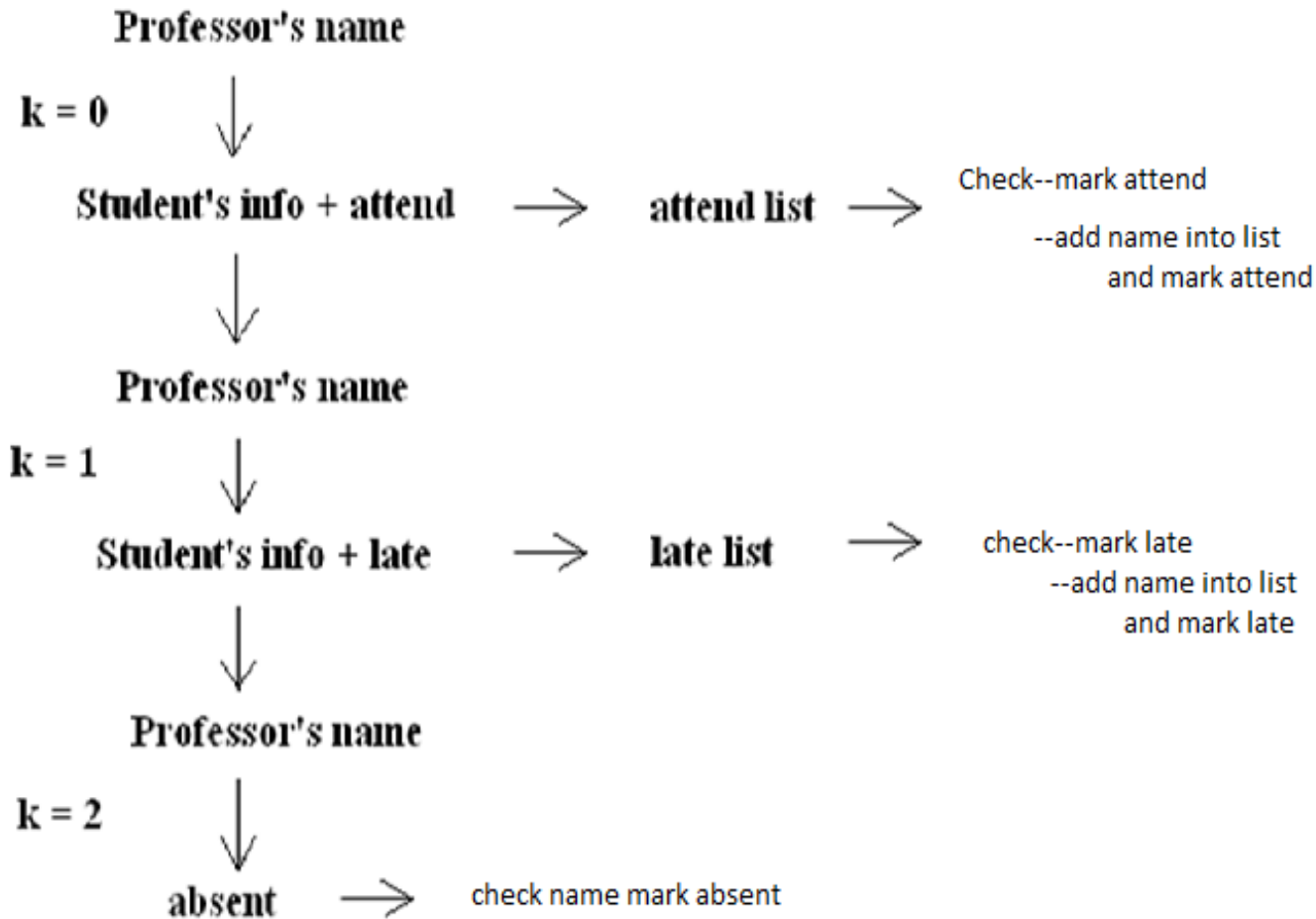
WORK BREAKDOWN STRUCTURE



PHYSICAL STRUCTURE

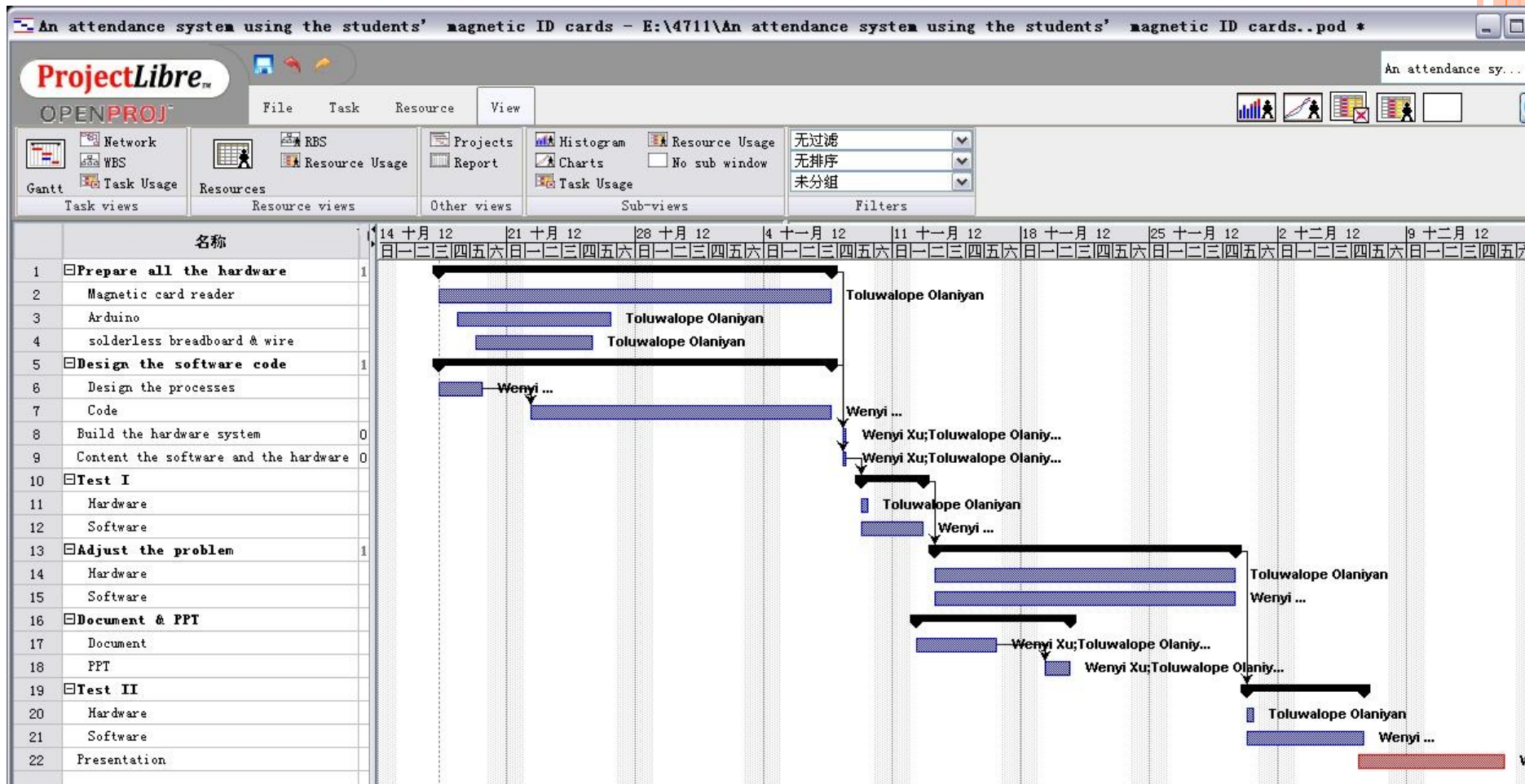


LOGIC STRUCTURE




PROJECT DEVELOPMENT PROCESS


○ How did you develop your project?



CONNECTIONS AND ASSEMBLY

- Made the hardware connections first- the magnetic ID is swiped through a card reader.
 - The card reader has a USB that is connected to the Arduino and the Arduino has another USB cord, which is plugged into the CPU.
- 

TESTING

- **Test I** - Wenyi Xu & Toluwalope Olaniyan (11/19/12)
 - **Adjust the problem-** Wenyi Xu & Toluwalope Olaniyan (11/21/12-11/26/12)
 - **Test II** - Wenyi Xu & Toluwalope Olaniyan (11/30/12)
 - **Test III-** Professor checks and gives input. (12/06/12)
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DEMONSTRATION

- How do we make use from excel to python?
- **DataNitro**: it enables you to use the popular programming language Python in Microsoft Excel. The plugin is free for individual non-commercial and enterprises will pay for the privilege.



CODE EXAMPLE I

o Connect to the hardware

```
try:
    ser = serial.Serial(
        port='com5',
        baudrate=9600,
        bytesize=serial.EIGHTBITS,
        parity=serial.PARITY_NONE,
        stopbits=serial.STOPBITS_ONE,
        timeout=0.1,
        xonxoff=0,
        rtscts=0,
        interCharTimeout=None
    )
    print 'Connection established'

except serial.SerialException:
    #no serial connection
    print 'No connection established'
    ser = None

last_received = ''
buffer = ''
while k<2 :
    buffer = buffer + ser.read(ser.inwaiting())
    if '\n' in buffer:
        lines = buffer.split('\n') # Guaranteed to have at least 2 entries
        last_received = lines[-2]

    #If the Arduino sends lots of empty lines, you'll lose the
    #last filled line, so you could make the above statement conditional
    #like so: if lines[-2]: last_received = lines[-2]
    buffer = lines[-1]
    #if int(last_recieved) < 1000:
    #winsound.Beep(int(last_received)+1000, 1000)
    #print last_received
```



CODE EXAMPLE II

o Select information

```
if k == 0:
    #finding Separators to Isolate the Name
    carrot = last_received.find('^')
    slash = last_received.find('/')
    #Isolating the Last Name
    lastName = last_received[carrot+1:slash]
    #Isolating the First Name
    newName = last_received[slash+1:]
    if k == 0:
        endCarrot = newName.find('^')
    firstName = newName[:endCarrot]
```

```
Connection established
Start
BM Init
Addr:1
BM configured
Poll:FF
%B5081191302024721^XU/WENYI^4912120      7 000?;5081191302024721=49121200
0000000000000?!!Poll:FF
Poll:FF
Poll:FF
Poll:FF
Poll:FF
```

CODE EXAMPLE III

○ How professor's name works

```
if i == 0:
    checkName = [lastName,firstName]
    i = i+1
    lastName = "
    firstName = "
    print 'Name of Professor: ', checkName
else:
    if [lastName, firstName] == checkName:
        k = k + 1
        print 'Student will be marked late'
    else:
```



CONCLUSION

The screenshot shows the Microsoft Excel interface with the DataNitro add-in ribbon. The ribbon contains several groups of buttons: 'Editor' and 'Python Shell' (represented by a document and terminal icon), a dropdown menu for file selection (currently showing '47111.py'), 'Run' (green play button) and 'Stop' (red stop button), 'Docs' (stack of books icon), 'Custom Solutions' (headset icon), and 'Settings' (gear icon). Below the ribbon, the spreadsheet is visible with columns A through F and rows 1 through 9. The cell at the intersection of row 3 and column F (cell F3) is highlighted with a thick black border. The data in the spreadsheet is as follows:

	A	B	C	D	E	F
1	LastName	FirstName	11/13/2012	11/13/2012		
2	WU	JASON	attend	late		
3	OLANIYAN	TOLUWAOPE	late	absent		
4	PARK	NICOLE		absent		
5	XU	WENYI		attend		
6	WONG	WILLIAM		late		
7						
8						
9						

