CSE223
LAB: 3
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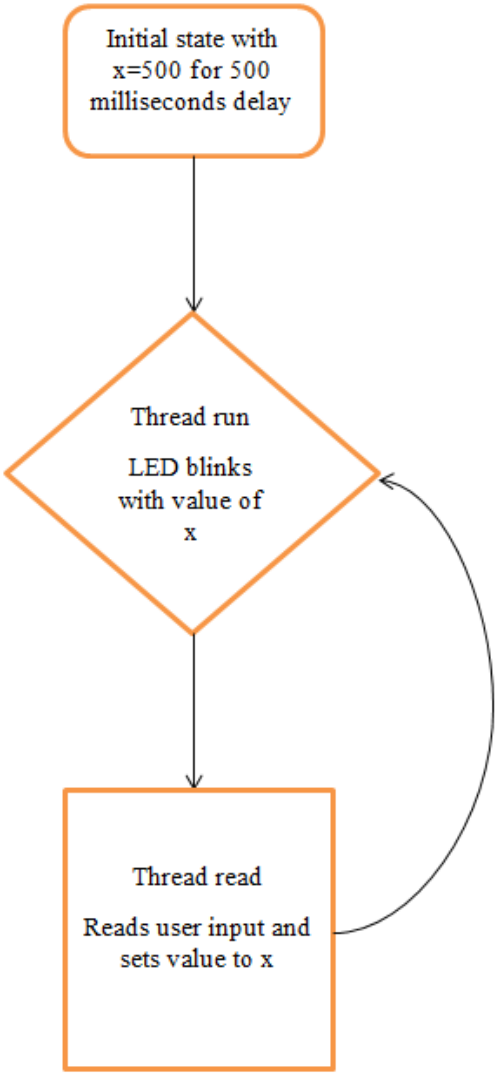
Date: 5/15/2017

Introduction: In this lab, we will continue to play with the Raspberry Pi based on what we did in lab 2. That is make an LED blink from a java program. We installed pi4j package that we will manipulate it to make this LED blink using Java programming. In the experiment in this lab, we used a single LED plugged into the port 14 (ground) and the ports 16 (GPIO 5).

Equipment: USB Raspberry Pi, LED, jumper wire, and proto board.

Pseudo Code:

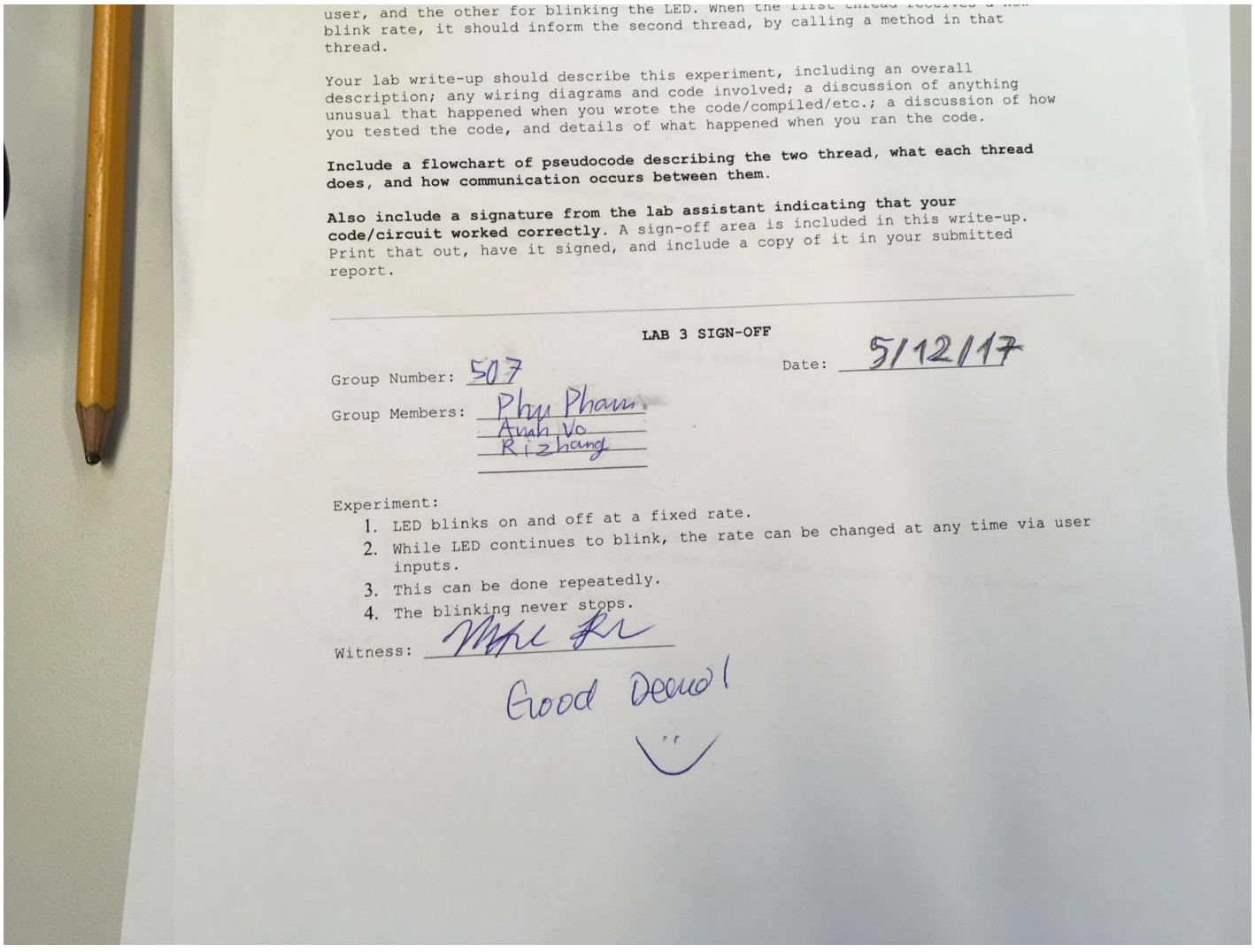


Experiment: In this experiment, we will write the program and the LED blink on and off every second. While the LED is blinking, the program will ask user enter a new number and the program will change the blink rate. This will be repeated indefinitely till then user enters another number. The blink rate is adjusted accordingly based on a pair of threads: one for receiving input from the user, and the other for blinking the LED. When the first thread receives a new blink rate, it should inform the second thread, by calling a method in that thread.

The code for this experiment

```
import com.pi4j.io.gpio.*;
import java.util.*;
public class eee { // the name of class

    int x = 1000; //set the default x to be 1000

    //below is the same code as last lab
    public void run()
    {
        GpioController gpio=GpioFactory.getInstance();
        //get an interface
        GpioPinDigitalOutput
pin=gpio.provisionDigitalOutputPin(RaspiPin.GPIO_04);
        // get the pins
        while(true)
          {try
             {pin.high();  // get the on/off continuously
              mySleep(x);
              pin.low();
              mySleep(x);
             }
            catch(Exception e)
            { }// optional: System.out.println("Error");
        }
    }

    static void mySleep(int t)
    { try
        {Thread.sleep(t);}
        catch(Exception e)
        { }
    }
// THese code above is form a previous lab.
    //=======================================
    //new code for this lab. using thread
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in); // get the integer
from user
```

```
        //get input from the user
        eee test = new eee(); // create the value similar to
program.

        Thread t = new Thread(test); //thread is created
        t.start(); //start the thread
        while(scan.hasNextInt())
        {
            t.interrupt(); // to interupt the running code
            test.x = scan.nextInt(); //set new x value

        }
        scan.close(); // close the Scan
    }

}
```



user, and the other for blinking the LED. When the first thread receives a new blink rate, it should inform the second thread, by calling a method in that thread.

Your lab write-up should describe this experiment, including an overall description; any wiring diagrams and code involved; a discussion of anything unusual that happened when you wrote the code/compiled/etc.; a discussion of how you tested the code, and details of what happened when you ran the code.

Include a flowchart of pseudocode describing the two thread, what each thread does, and how communication occurs between them.

Also include a signature from the lab assistant indicating that your code/circuit worked correctly. A sign-off area is included in this write-up. Print that out, have it signed, and include a copy of it in your submitted report.

LAB 3 SIGN-OFF

Group Number: 507 Date: 5/12/17

Group Members: Phu Pham
Anh Vo
Rizhang

Experiment:

1. LED blinks on and off at a fixed rate.
2. While LED continues to blink, the rate can be changed at any time via user inputs.
3. This can be done repeatedly.
4. The blinking never stops.

Witness: Mike Ri

Good Demo!