Introduction to Arduino Platform and IoT (Python)

# Event Summary

(\*) – Fill if applicable

(1) – Workshop / Stem Event / Site Visit / Talk / Etc (describe in short)

|  |  |
| --- | --- |
| **Event type1** | Workshop |
| **Collaboration(s)\*** | IEEE |
| **Event Date**  **(dd/mm/yyyy)** | **From: March 7th 2020**  **To: March 8th 2020** |
| **Event Time** | **From: <<Detailed Below>>**  **To:** |
| **Publicity Period\*** | **From: February 10th 2020**  **To: February 25th 2020** |
| **Publicity Methods: Social Media + Club’s Day** |
| **Venue** | G01101 |
| **Estimated Attendance** | 30 |
| **Target Demographic\*** | Engineering Students Y1 |
| **Total Event Hours** | 12 |
| **ECA/SWA Points**  **(yes / no) – specify** | yes |

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# Objectives

|  |  |
| --- | --- |
| **No** | **Objective(s)** |
| 01 | C Programming ( Data Types, If-Else Statement , Loops, Functions ) |
| 02 | Arduino Programming ( Arduino IDE, Void setup / loop , Arduino Syntaxes ) |
| 03 | Arduino Hardware ( Digital and Analogue Pins, PWM, RX and TX ) |
| 04 | Arduino Sensors ( LDR, Ultrasonic Sensors ) |
| 05 | Python PySerial Console Application + Bluetooth Module |

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# Organizing Committee

**Main Committee (Chair Person, Vice Chairperson, etc.)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Name** | **Position in Committee** | **ID** | **Contact** |
| 01 | Ng Tsu Yao | Chairperson | 1001748557 | 0103946101 |
| 02 | Ibrahim Izdhan | Vice Chairperson | 1001852671 | 01161843966 |

**List of External/Helper Members\***

**<<details in committee/helper request form>>**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Name** | **ID** | **Contact** |
| 01 |  |  |  |
| 02 |  |  |  |
| 03 |  |  |  |

**Total Manpower: 10+ (Ideally)**

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# Program Flow

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Time** | **Activity** | **Details** |
| **DAY 1** | | | |
| 01 | 8:30 AM | Signing In | Sign in for the event and also collection of Arduino Kits if purchased |
| 02 | 9:00 AM | Introduction | Introducing general run down of the workshop and also the committee helpers |
| 03 | 9:10 AM | Introduction to Arduino (Hardware) | * Arduino Hardware Section – [D0-12 ; PWM ; A0-5 Vin 5V GND Tx Rx RES Important Things to cover maximum Voltage >> Vin ; Maximum Current that can be drawn from each pin (400mA) for nano. USB is connected to Tx Rx and Vin. |
| 04 | 09:30 AM | C/C++ Programming | -IDE Setup + Trouble Shooting [10 minutes ] >> if less participants have issue send helper for 1 on 1 troubleshooting  -Data Types and Arithmetic w/ demo [20 minutes]  - key compiler functions (pinMode, delay, analog and digital), Serial Initialization – activity (blink) [45 minutes]  - PWM for bulb [10 minute]  - Array Blink with loop (for) [20 minutes] |
| 05 | 11:15 AM | Breaktime and Q&A | Lunch Break |
| 06 | 12:00 PM | Continue Session – C/C++ programming | -Control LED with LDR (if-else) [30 minutes] |
| 07 | 12:30PM | Ultrasound Sensor | * Introduce sensor physics and components [30 minutes] * Setup and debug connection [30 minutes] |
| 08 | 1:30 PM | Closing and briefing for Next Day (2) | * Reviewing next day material (skim) – [15 minutes] |
| **DAY 2** | | | |
| 01 | 10:00 AM | Slight Review and Q&A | * [30 minutes] |
| 02 | 10:30 AM | Serial Class and methods in Detail | * [30 minutes] |
| 03 | 11:00 AM | Bluetooth device and Connection | * [20 minutes] |
| 04 | 11:20 AM | Changing ID and Pin Code of Bluetooth | * Use already prepared code [10 minutes] |
| 05 | 11:30 AM | Bluetooth Code – Establishing Serial Connection | * [15 minutes if needed] |
| 06 | 11:45 AM | Introduction to Python module PySerial – Make Console Application | * [1 and ½ hour] |
| 07 | 13:15 AM | Break and Q&A | * [30 minutes] |

# Proposed Budget

## Revenue

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Item** | **Quantity** | **Unit Price (RM)** | **Total (RM)** |
| 01 | Registration + Kit[[1]](#footnote-1) ( Members ) |  | 50.00 |  |
| 02 | Registration + Kit ( Non Members ) |  | 60.00 |  |
| 03 |  |  |  |  |

## Expenses

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Item** | **Quantity** | **Unit Price (RM)** | **Total (RM)** |
| KIT[[2]](#footnote-2) | Arduino Nano |  | 15.00 |  |
| Breadboard Small Sized |  | 2.70 |  |
| M-M, M-F wires |  | 6.00 |  |
| HC-06 Bluetooth Module |  | 15.90 |  |
| LDR sensors |  | 0.40 |  |
| LEDs |  | 0.10 |  |
| Ultrasonic Sensors |  | 3.20 |  |

**Net Cash Flow (RM):**

# Proposal Approval

**Proposal Prepared by:**

**NAME**

**Ng Tsu Yao**

**……………………… (sign)**

**Proposal Reviewed by:**

**NAME**

**Position**

**………………………**

**Proposal Approved by:**

**NAME**

**(President) (Vice Pres) (Next Highest in Command)**

**………………………**

**Ibrahim Izdhan**

**………………………**

**NAME**

**(Club Advisor)**

**………………………**

1. Price of Kit Averages to 45 as viewed from Cytron Market Place [↑](#footnote-ref-1)
2. Each Participant will be given the option to purchase the kit. They can opt out of a device if they already possess said device. [↑](#footnote-ref-2)