Republic of the Philippines

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Vision: A premier S&T university for the formation of world class and virtuous human resource for sustainable development in

Bohol and the Country.

Mission: BISU is committed to provide quality higher education in the arts and sciences, as well as in the professional and

technological fields;undertake research and development, and extension services for the sustainable development of

Bohol and the country.

**PROJECT IN** EE 411

(Control System)

**Bascule Bridge System**

Submitted to:

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BS CpE 4

Project No: 1 Date Begun: August 20, 2016 Date Finished: October 28, 2016

1. Name of Project: BASCULE BRIDGE SYSTEM
2. Objectives of the Project:

* To be able to enhance our skills in this subject and applying it to the real world’s demand.
* To simulate a Bascule Bridge System with the help of a Micro-Controller (Arduino). And sensors use to detect the incoming aquatic vehicle.

1. Bill of Materials:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item No. | | Item Name | Quantity | Unit | Description  Of Materials | Unit Cost | Total Cost |
| 1 | | Arduino Uno | 1 | piece |  | Php 510.00 | Php 510.00 |
| 2 | | Servo | 2 | piece |  | Php 250.00 | Php 500.00 |
| 3 | | Hooked up Wire | 5 | piece |  | Php 5.00 | Php 25.00 |
| 4 | | Light Dependent Resistor | 2 | piece |  | Php30.00 | Php 60.00 |
| 5 | | Resistor | 2 | piece | ¼ watt, 220 ohms | Php 00.50 | Php 1.00 |
| 6 | | Cardboard | 2 | piece |  | Php 32.00 | Php 64.00 |
| 7 | | Glue Stick | 10 | piece |  | Php 3..00 | Php 30.00 |
| 8 | | Popsicle Stick | 2 | pack |  | Php 20.00 | Php 60.00 |
| 9 | | Paint Spray | 1 | piece | blue | Php 90.00 | Php 90.00 |
| 10 | | Stickers | 1 | pack |  | Php 20.00 | Php 20.00 |
| 11 | | Bridge Prototype | 1 | piece |  | Php 199.00 | Php 199.00 |
| 12 | | Cartolina | 1 | piece |  | Php 6.00 | Php 6.00 |
| **TOTAL Php 1,565.00** | | | | | | | |
| 1. Tools and Equipment Needed:  * Glue Gun * Cutter * Scissors * Pliers  1. Execution (Steps in making the Project)   a. Create a program in Arduino that will satisfies the condition of our project. The condition is by blocking the LDR sensor in which the program will react on the given data.  b. Buy the materials and provide the tools and equipment that is needed for the project.  c. Make a prototype that simulates real life scenario that where the project will be applied.  d. After all the preparation, upload the program to the Arduino device.  e. Test the prototype.  VI. Evaluation:   1. Costing:   Cost of Materials: **Php 1,565.00**  Cost of Labor: **None** Total Cost:**Php 1,565.00**   1. Rating of the Project:  |  |  |  |  |  | | --- | --- | --- | --- | --- | | CRITERIA | WEIGHT | STIUDENTS RATING | INSTRUCTOR’S RATING | FINAL RATING (Average) | | Workmanship | 50% |  |  |  | | Proper Use of Material | 10% |  |  |  | | Proper Use of Tools and Equipment | 15% |  |  |  | | Speed | 15% |  |  |  | | Safety | 10% |  |  |  | |  | 100% |  |  |  |   Remarks:  Name of Project: **BASCULE BRIDGE SYSTEM**  Definition:  This Bascule Bridge system allows a certain aquatic vehicle e.g. ship, boat, to pass under a bridge. The certain bridge has a system that will detect an incoming aquatic vehicle and will automatically retract the bridge so that the ship/boat can gain access to the water system beyond the bridge. The Bascule Bridge system is operated by a Micro-Controller with the use of LDR (Light Dependent Resistor). The LDR is used to detect the incoming aquatic vehicle, once it detects a ship/boat it sends a signal to the micro-controller, then the micro- controller retracts the bridge so that the aquatic vehicle can pass under the retracted bridge. Once the boat passes the bridge it will trigger yet again another LDR that will send a signal back to the micro-controller signaling it to lower the retracted bridge.  Pictorial Diagram:  C:\Users\Max Angelo Perin\AppData\Local\Microsoft\Windows\INetCache\Content.Word\C360_2016-10-28-17-25-08-659.jpg  Arduino Uno Program:  #include <Servo.h>  Servo myServo;  int pos;  // this constant won't change:  const int buttonPin = 5; // the pin that the pushbutton is attached to  const int ledPin = 13; // the pin that the LED is attached to  // Variables will change:  int buttonPushCounter = 0; // counter for the number of button presses  int buttonState = 0; // current state of the button  int lastButtonState = 0; // previous state of the button  void setup() {  myServo.attach (9);  // initialize the button pin as a input:  pinMode(buttonPin, INPUT);  // initialize the LED as an output:  pinMode(ledPin, OUTPUT);  // initialize serial communication:  Serial.begin(9600);  }  void loop() {  // read the pushbutton input pin:  buttonState = digitalRead(buttonPin);  // compare the buttonState to its previous state  if (buttonState != lastButtonState) {  // if the state has changed, increment the counter  if (buttonState == HIGH) {  // if the current state is HIGH then the button  // wend from off to on:  buttonPushCounter++;  Serial.println("on");  Serial.print("number of button pushes: ");  Serial.println(buttonPushCounter);  for (pos = 90; pos >= 0; pos--)  {  myServo.write (pos);  delay (10);  }  } else {  // if the current state is LOW then the button  // wend from on to off:  Serial.println("off");  for (pos = 0; pos <= 90; pos++)  {  myServo.write (pos);  delay (10);  }  }  // Delay a little bit to avoid bouncing  delay(50);  }  // save the current state as the last state,  //for next time through the loop  lastButtonState = buttonState;  // turns on the LED every four button pushes by  // checking the modulo of the button push counter.  // the modulo function gives you the remainder of  // the division of two numbers:  if (buttonPushCounter % 4 == 0) {  digitalWrite(ledPin, HIGH);  } else {  digitalWrite(ledPin, LOW);  }  } | | | | | | | |