Nov - 1,4

Feb - 11,15

March - 16,29

April - 1,3

11/01/2017

Agenda Items for Today:

· Understand MESA NEDC 2017-18 Requirements and Guidelines from MESA Packet “2017-18 NEDC Description 1-29-18.pdf” from MESA Maryland website (https://secwww.jhuapl.edu/MESA/Home/MESADays)

· List out possible community problems 5 or more than 5 by each team member

Progress on Agenda Items:

· Understand MESA NEDC 2017-18 Requirements and Guidelines from MESA Packet

* We read “2017-18 NEDC Description 1-29-18.pdf” and understood the Competition Overview, categories of documents that need to be worked on, rules and regulations.
* Also understood how the Rubric is for each of the competition items for NEDC Arduino Project.

· List out possible community problems 5 or more than 5 by each team member

We discussed among ourselves about everyone’s listed community problems

Venya’s list:

* Earthquake tracking device
* Water filtering device
* Trash can that tells you to recycle when you’re trying to throw a recyclable item into the trash
* Device that helps farmers locate water
* An alarm for any danger that directly sends a message to your phone

Harini’s list:

* Device to help people who doesn’t have their hand
* Device to help prevent infestations on cruises
* Flood warning device
* Device that stores your phone while you’re not holding it, like when your at the pool
* Device that helps people when part of their brain isn’t working

Srinidhi’s list:

* A device to help people with paralyzed legs
* Device for farmers who do not have direct access to water and to detect water in earth
* Device to help people that need a walker or wheelchair
* Device to track someones phone when stolen
* Device to canes (stick) to help blind people

Pragna’s list:

Next session’s Objectives:

· Shortlist at least three community problems from each person’s list

· Learn about some technical terminology

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11/04/2017

Agenda Items for Today:

* Shortlist at least three community problems from each team members list
* Learn about some technical terminology

Progress on Agenda Items:

Task wise progress is as below

* Shortlist at least three community problems from each team members list
  + We shortlisted 3 community problem ideas from each team member’s list
    - Venya’s List:
      * Water filtering device
      * Trash can that tells you to recycle when you’re trying to throw a recyclable item into the trash
      * Device that helps farmers locate water
    - Harini’s List:
      * Device to help people who doesn’t have their hand
      * Device to help prevent infestations on cruises
      * Flood warning device
    - Sinidhi’s List:
      * A device to help people with paralyzed legs
      * Device for farmers who do not have direct access to water
      * Device to canes (stick) to help blind people
    - Pragna’s List:
  + When we reviewed the community problems each of us wrote down we found that many of the problems were linked to the environment in some way.
  + This task is completed
* Learn about some technical terminology
  + We learned about Embedded Systems and how they work using an example.
  + Embedded Systems: Controlling hardware with software
    - Hardware examples: Arduino Board, any electronic component
    - software examples: Arduino code
    - Use Case **Diagram**: (real world scenario)  
      - draw diagram of **water level measurement** device.

References: Coach Explanation on technology terminology.

Next session’s Objectives:

* Look through the Arduino sensor kit
* Verify the MESA packet in detail
* Understand the “Arduino Programing” textbook and arduino.cc website
* Understand Arduino programming logic

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11/05/2017

Today’s Agenda:

1. Look through the Arduino sensor kit
2. Verify the MESA packet in detail
3. Understand the “Arduino Programing” textbook and arduino.cc website
4. Understand Arduino programming logic

Progress on Agenda Items:

1. Look through the Arduino sensor kit:

● We learned about different sensors from the Arduino Elegoo sensor kit

● We looked at sensors we could possibly use for our device

2. Verify the MESA packet in detail:

● We took some additional notes on requirements and limitations

Design Requirements and Limitations

- Use Arduino style hardware

- At least 3 sensors

- At least 2 outputs

- Smaller than 20 in x 20 in x 20 in

- Lighter than 20 lbs

- Be packaged in a functional and attention grabbing form factor

Poster

- Tri-fold dimensions for regionals and states: 36 in x 48 in

- Title at the top of the poster

- Section with:

1. School name
2. Grade level
3. State representing
4. Team member names

- Official MESA logo

- Objective / Requirements of design

- Engineering design process

- Data

- Conclusion

- Next Steps

- Support materials

- Major sections clearly labeled

- Engineering design notebook should be present

- Laptop used to program should be present

Presentation and Technical Interview Rules

- Have to wear official MESA shirts

- 5 minutes for presentation

- 3 - 5 minutes to demonstrate the prototype

- 10 - 12 minutes for technical interview ( questions on prototype)

- No longer than 20 minutes

- Extra time taken for the presentation or demonstration will take time off the technical interview

- The questions the judges ask will be:

1. Clarification questions
2. Follow - up questions to presentation
3. Team objective
4. Engineering design process
5. Data
6. Conclusions
7. Next Steps
8. Support material

- The presentation should include:

1. Project objective
2. Engineering design process
3. Conclusion and next steps

- The presentation should have:

1. The prototype should be working during the presentation
2. Should discuss prototype design, chosen hardware and logic behind those choices, and flow chart
3. The uniqueness of our device
4. How the device meets the client’s requirements
5. The usability of the device
6. Testing during the development

- The project report should be 5 - 10 pages

3. Understand the “Arduino Programing” textbook and arduino.cc website:

● We understood different predefined functions in the arduino website like; setup(), loop(), digitalWrite(), digitalRead(), Serial.begin(), pinMode() etc.,

● In Arduino textbook, we researched the complete programming techniques and some examples to get a better understanding

4. Understand Arduino programming logic

● We understood different programming conditions

if ( waterLevel > 8 ft )

then

{

//LOW

//Switch OFF PowerSupply

} else {

//HIGH

//Switch ON PowerSupply

}

On ( HIGH )

Off ( LOW )

Next Session’s Objectives:

● Learn about Arduino boards, electronic components, and sensors

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11/11/2017

Agenda Items for Today:

* Learn Arduino Resources (“2017-18 NEDC Description 1-29-18.pdf”) from Maryland MESA website
* Learn about few Electronic Components
* Download the Arduino Software

Progress on Agenda Items:

Task wise progress is as below

* Learn Arduino Resources (Appendix H of “2017-18 NEDC Description 1-29-18.pdf”) from Maryland MESA website
  + We read Appendix H of “2017-18 NEDC Description 1-29-18.pdf” document and understood that there are different types of Arduino Boards are there as listed below:
    - Sparkfun
      * Sparkfun is the company that make the RED Board
    - Arduino UNO
      * Arduino UNO board is also called as Arduino Board. This is made by Arduino company.
    - Arduino MEGA 2560
      * Arduino MEGA board is also Arduino’s Brand. This has more pins than UNO board
      * 2560 is the MEGA board model number.
    - Elegoo
      * Elegoo is another company that makes Arduino UNO boards and a big set of sensors.
      * Decided to order one sensor kit from this company and we can practice and learn different sensors related small fun projects.
    - ArduinoModules.info
      * This website has good information about how to start a sample program, it has sample code for many sensors. We browsed some of the Arduino code who it looks like.
      * We decided to order some good books on Arduino programming Language
  + This task is completed
* Learn about few Electronic Components
  + Circuit:
    - A combination of Electronic Components
  + Learned about different Electronic Components:
    - * Integrated Circuit (IC) - Chip
        + A big circuit in a compact size and enclosed in a semiconductor material
      * Wire
      * LED (Light Emitting Device)

Used in most of the circuits

* + - * Sensor
        + A device that detects a physical property and records or responds to it. Mostly these are input devices.
      * Speakers
        + Produces sound and it is an output device
      * Motors
        + Produces motion
      * Resistors
        + In electronic **circuits**, **resistors** are used to reduce current flow, adjust signal levels
      * Battery (power supply)
        + AC Supply and DC supply
        + Batteries are mostly DC power supply
      * Diode
        + A semiconductor device with two ends.
        + Di means two
      * Triode
        + A semiconductor device with three connections.
        + Tri means three
      * Transistor
        + This is an example of Triode
        + There are two types - PNP and NPN
      * Soldering
        + Understood about soldering and is interesting.
        + Ex: the pins on the back of the Arduino board has
      * Bread Board
        + Construction base for prototyping of electronics
        + This is a flexible and nice board for practicing electronics projects.
* Download the Arduino Software
  + Understood that there are Arduino tool software of Online version and Offline version to download from the Arduino website: <https://www.arduino.cc/en/Main/Software>
  + Decided to download offline version - Windows zip 1.8.5 (Arduino.exe)
  + Arduino Software was installed in our computer and tried to create one new program. It has:
    - setup() -> executes only once
    - loop() -> logic repeats always

Next session’s Objectives:

* Install the Arduino Software in laptops
* What are functions
* What are coding standards and Engineering standards
* Learn about Microcontroller
* Learn about Memory

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11/18/2017

Agenda Items for Today:

* Install the Arduino Software in all laptops
* What are functions
* What are coding standards and Engineering standards
* Learn about Microcontroller
* Learn about Memory

Progress on Agenda Items:

Progress on each item is as below

* Install the Arduino Software in all laptops
  + We installed the software in all of our laptops
  + The version we installed is of windows type zip 1.8.5
  + We learned about .exe file and we found Arduino.exe file in our windows folders after installing Arduino software.
  + We double clicked it and Arduino IDE (Integrated Development Environment - to develop code) with two default functions - setup() and loop()
  + We observed there are Verify and Upload options in Arduino IDE
  + Verify is compiling the code - Checking the code if it is using proper syntax.
  + Syntax is the way that we have to code with some rules.
* What are functions
  + We learned about what is function: To do a task.
  + All functions will have braces ()
  + Some functions may have parameters (variables passing) eg: delay(1000)
  + Here delay is a function and 1000 is the parameter passing to the function.
  + Some more functions are: pinMode(.. , ..), setup(), loop(), digitalWrite(.. , ..)
  + There are two types of functions
    - Predefined functions: these are readily available to use in our program code. These will be present in Arduino libraries.
    - Custom functions: These are the functions we can write ourselves with whatever the functionality we want. These are our own functions.
* What are coding standards and Engineering standards
  + Coding standards are some rules we can define for our program
    - When there are two words as a function name, the first character of the first word will be always small letter, and the first character of the second word should always be upper case letter.
    - Ex: digitalWrite()
  + We also studied about some engineering standards in the website: <http://www.nextgenscience.org/>
  + We planned to use some engineering design standards in our project
* Learn about Microcontroller
  + It is a Single integrated circuit (IC or Chip)
  + Ex: ATMEL AVR (Audio Video Receiver) microcontroller
  + Microcontrollers are very powerful
  + Arduino board are having microcontrollers as heart of the board.
* Learn about Memory
  + Two types of memories: RAM and HDD
  + Learned about RAM (Random Access Memory) which is a temporary memory that will be used when any application or program is running. Once the app/program ends this RAM memory will be freed. Ex: 8GB, 16GB (gigabytes)
  + Another type of memory is Hard Disk Drive also called as HDD. This is the computer's storage memory. We can store pictures, files, videos and etc permanently on this hard disk. This is not related to any app memory.

Next session’s Objectives:

* Introduction to Arduino Board
* What is Digital and Analog signals
* Arduino Board Pin configuration
* Learn about LDR - Light Dependent Resistor

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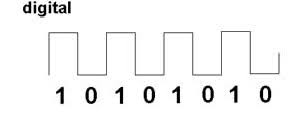
11/20/2017

Agenda Items for Today:

* Introduction to Arduino Board
* What is Digital and Analog signals
* Arduino Board Pin configuration
* Learn about LDR - Light Dependent Resistor

Progress on Agenda Items:

Task wise progress is as below

* Introduction to Arduino UNO Board
  + Learned about the Parts of the board:
* What is Digital and Analog signals
  + Digital
    - ON → 1 → HIGH
    - OFF → 0 → LOW
    - Digital Signals are discrete time signals
    - 
    - Examples: Computers, CDs etc use digital signals
  + Analog
    - These are continuous signals
    - Example: Human voice in the air, analog devices
* Arduino Board Pin configuration
  + Digital pins (2-13 are digital pins) for digital signals
  + Analog pins - for analog signals
  + Digital Ground
  + VCC as DC power supply pin
  + Microcontroller
  + Chips
  + Ground pins
* Learn about LDR - Light Dependent Resistor
  + It is a Light Dependent Resistor or PhotoResistor (Photo means Light)
  + Definition: It is a light controlled variable resistor
  + The resistance decreases with the increase of light.
  + Diagram in Venya’s journal (Nov 20th)
* These tasks are completed

Next session’s Objectives:

* List out Environmental departments/Landfills near to our community.
* Note down the details of the corresponding Environmental departments/Landfills.

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12/02/2017

Agenda Items for Today:

* Learned about a Integrated circuit
* Learned about different memory types
* Learned about different data types

Progress on Agenda Items:

* Learned about a Integrated circuit

1. observed Integrated Circuit chips present in Arduino Board

2. Learned about what the Integrated circuit chip does and how it got that name. Integrated Circuit is an actual electronic circuit in a compact size and made as a small chip which will have pins connecting internally to the circuit. Integrated circuit short name is IC, it is also called as a chip.

3. Learned about how it is involved in arduino hardware

* Learned about different memory types

1. Learned about RAM (Random Access Memory) which is a temporary memory that will be used when any application or program is running. Once the app/program ends this RAM memory will be freed.

Another type of memory is Hard Disk Drive also called as HDD. This is the computer's storage memory. We can store pictures, files, videos and etc permanently on this hard disk. This is not related to any app memory.

2. Learned about how RAM memory is used in Arduino hardware like when we load the code from computer to arduino hardware

* Learned about different data types

1. Learned about int, float, character, string, long data types

Int: is used to store Integer values

Float: to store decimal values

Character: to store single characters

String: to store set of characters which is a text value.

Long: to store long value

2.Learned about how the data types are involved in arduino program like creating variables of different data types and store values in it and use in the code.

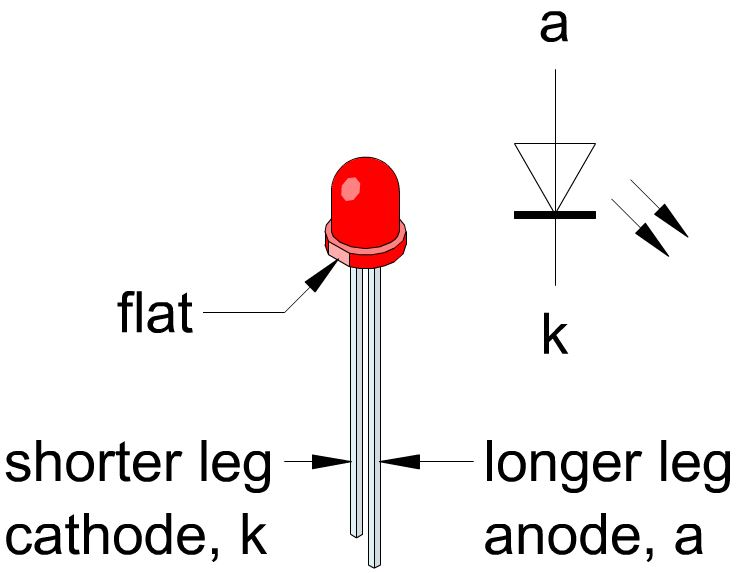
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12/16/2017

Agenda Items for Today:

* Learn about LCD
* Notes for different LCD functions
* Anode and Cathode
* Potentiometer

Progress on Agenda Items:

* Learn about LCD
  + Liquid Crystal Display (LCD) is a display device: Consists of liquid crystals that are activated by electric current.
  + It is a 16 pin interface
  + An interface is a communication channel between two things.
  + It can display characters or commands on its display panel
* Notes for different LCD functions
  + We learned about 2 more functions: display() and nodisplay()
  + display() - it can be used to display characters
  + noDisplay() -it will be used for no display
  + “Arduino Programming” textbook
* Anode and Cathode
  + Anode: Electricity flows IN to an electronic device
  + Cathode: Electricity flows OUT of an electronic device
  + Example diagram:
  + 
* Potentiometer
  + A potentiometer is a 3 terminal resistor with a sliding or rotating contact to control voltage.
  + **Diagram from Venya’s book**

Next session’s Objectives:

* Learn about Libraries
* Liquid Crystal Display code
* Predefined Classes

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12/18/2017

Agenda Items for Today:

* Learn about Libraries
* Liquid Crystal Display code
* Predefined Classes

Progress on Agenda Items:

* Learn about Libraries
  + To include arduino libraries in our code, we need to use #include <library name>
    - #include <LiquidCrystal.h> //To include LCD library
    - #include <Servo.h> //To include Servo Motor library
* Liquid Crystal Display code

// initialize the library by associating any needed LCD interface pin

// with the arduino pin number it is connected to

const int rs = 12, en = 11, d4 = 5, d5 = 4, d6 = 3, d7 = 2;

LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

lcd.setCursor(0, 0);

lcd.print("Please Recycle!");

* Predefined Classes
  + A class is simply a collection of functions and variables that are all kept together in one place.
  + If it is present in the default arduino library or included external library, then it is called a pre-defined class
  + We can write our own custom defined class also.

Next session’s Objectives:

* Learn more about Arduino Language Reference

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01/02/2018

Agenda Items for Today:

* How does Global Warming affect the environment and would this be a good community problem to solve
* What chemicals get released during major Global Warming

Progress on Agenda Items:

* How does Global Warming affect the environment
  + Learned about to negative effects of global warming
  + Talked about the pros and cons of building a product involving global warming
* What chemicals get released during major Global Warming
  + The different toxic and air pollutant chemicals getting released into the atmosphere
    - Example: Carbon Dioxide, Methane, Nitrous Oxide and many more
  + The reactions of what happens when chemicals get released
    - Humans and other living things will be affected and get sick due to these dangerous gases.
    - cancer-causing chemicals such as acetaldehyde, styrene and lead.
* These tasks are completed

Next session’s Objectives:

* Learn more about Arduino Language Reference

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01/10/2018

Agenda Items for Today:

* Learn more about Arduino Language Reference

Progress on Agenda Items:

* Learn more about Arduino Language Reference
  + Referred Arduino website for language references:
    - <https://www.arduino.cc/reference/en/>
  + Arduino programming language can be divided in three main parts: structure, values (variables and constants), and functions.
  + Structures: The elements of Arduino (C++) code.

##### Sketch: setup(), loop()

* + - Learned about further syntax
      * #define (define)
      * #include (include)
      * /\* \*/ (block comment)
      * // (single line comment)
  + Variables: These are Arduino Data types and constant values
    - Defining Pin Levels: HIGH and LOW
      * When reading or writing to a digital pin there are only two possible values a pin can be set to: HIGH and LOW.
    - Digital pins can be used as INPUT, INPUT\_PULLUP, or OUTPUT. Changing a pin with pinMode() changes the electrical behavior of the pin.
  + Functions:
    - For controlling the Arduino board using programming logic
    - **Digital I/O** function examples
      * digitalRead()
      * digitalWrite()
      * pinMode()
    - Communication - example for communication function is:
      * Serial
    - Time - Example for Time function is:
      * delay()

Next session’s Objectives:

* Engineering Design Process
* Device Design diagram - Iteration 1

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02/11/2018

Agenda Items for Today:

* Engineering Design Process
* Finalize few sensors for the prototype
* Device Design diagram - Iteration 1

Progress on Agenda Items:

* Engineering Design Process
  + Engineering Design Process Diagram (from Harini’s journal)
* Finalize few sensors for the prototype
  + Inductive Proximity Sensor
    - This is used to detect metals with 4mm distance range
    - Inductive proximity sensors are used for non-contact detection of metallic objects. Their operating principle is based on a coil and oscillator that creates an electromagnetic field in the close surroundings of the sensing surface.
* Device Design diagram - Iteration 1
  + Prototype Design Diagram (from Srinidhi’s journal)

Next session’s Objectives:

* Functions for Inductive Proximity Sensors
* Sample code for Inductive Proximity Sensors (Metal Detector)

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02/15/2018

Agenda Items for Today:

* Functions for Inductive Proximity Sensors
* Sample code for Inductive Proximity Sensors (Metal Detector)
* Finalize motion sensor to be used in the prototype

Progress on Agenda Items:

* Functions for Inductive Proximity Sensors
  + Serial.begin(9600)
  + analogRead(pin)
  + Serial.println(monitoring)
* Sample code for Inductive Proximity Sensors (Metal Detector)

int analogPin = 1;

int monitoring = 0;

void setup()

{

Serial.begin(9600);

}

void loop()

{

monitoring = analogRead(analogPin);

Serial.println(monitoring);

}

* Finalize motion sensor to be used in the prototype
  + After researching we decided to use Ultrasonic sensor as Motion Sensor.

Next session’s Objectives:

* Piezo Buzzer coding
* ISR - Interrupt Service Routine
* Motion Sensor module flow

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03/16/2018

Agenda Items for Today:

* Piezo Buzzer coding
* ISR - Interrupt Service Routine
* Motion Sensor module flow

Progress on Agenda Items:

Task wise progress is as below

* Piezo Buzzer coding
  + int piezoPin = 8; //Connect to Digital Pin 8 of Arduino Board
  + tone(piezoPin, 4000, 2500); //Pin Number, Frequency in Hz, duration in milli seconds
* ISR - Interrupt Service Routine
  + Interrupts
    - These are signals to processor
    - Emitted by hardware or program
    - Alerts processor for high priority conditions to act by micro-controller
* Motion Sensor module flow

setup()

attachInterrupts()

intruderDetect()

siren()

Next session’s Objectives:

* Finalize the Prototype Name
* Finalize the Module Names
* List out the pins to be used for Prototype design

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03/29/2018

Agenda Items for Today:

* Finalize the Prototype Name
* Finalize the Module Names
* Finalize Team Name
* List out the pins to be used for Prototype design

Progress on Agenda Items:

Task wise progress is as below:

We listed out different names for prototype, and team names and conducted voting among four of us and our coach

Finally we selected below names

* Finalize the Prototype Name
  + R3 - RCube
    - Reduce - Reuse - Recycle
    - This suits perfect for our prototype as we are doing project related to identifying recycling materials in trash bin.
* Finalize the Module Names
  + Metal Detector
  + Motion/Temperature Detector
  + LCD Panel
* Finalize Team Name
  + TheRoboKnights
* List out the pins to be used for Prototype design
  + Ultrasonic Sensor as Motion Detector Input Device.
  + Trigger pin as Analog pin A3
  + Ultrasonic sensor power pin to Analog pin A4
  + echo pin to Analog pin A2
  + Inductive Proximity sensor as Metal Detector Input Device.
  + Pulse signal to Analog pin A1
  + Sensor Power signals from VCC (5 volts)
  + Sensor Ground from GND pin
  + DC Servo as Output Device
  + Servo pin to Analog pin A5
  + Liquid Display (LCD) as Output Device.
  + LCD RS pin to digital pin 12
  + LCD Enable pin to digital pin 11
  + LCD D4 pin to digital pin 5
  + LCD D5 pin to digital pin 4
  + LCD D6 pin to digital pin 3
  + LCD D7 pin to digital pin 2
  + LCD R/W pin to ground
  + LCD VSS pin to ground
  + LCD VCC pin to 5V
  + 10K and 100 ohm resistor:
  + ending to +5V and ground
  + wiper to LCD VO pin (pin 3)
  + Passive Buzzer as Output Device:
  + For this buzzer Digital Pin# 8
  + with 100 ohms resistor to lessen the power to the buzzer

Next session’s Objectives:

* Coding and Testing LCD display module
* Coding and Testing Motion Detector module
* Make the R3 prototype trash bin cut to fix all sensors

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04/01/2018

Agenda Items for Today:

* Coding and Testing LCD display module
* Coding and Testing Motion Detector module
* Make the R3 prototype trash bin cut to fix all sensors

Progress on Agenda Items:

Task wise progress is as below. We used Breadboard for circuit connections and Arduino IDE for coding.

First we did individual modules coding and testing.

* Coding and Testing LCD display module
  + Completed coding using Arduino IDE
  + Connected LCD pins to Arduino Board pins and power supply batteries
  + Tested this module and we were able to see the output result of a sample test “Hello World” on LCD display. And then displayed “Please Recycle!” text on LCD
* Coding and Testing Motion Detector module
  + Coding completed and connected the circuit with Inductive proximity sensor and Arduino Board
  + Tested successfully with some materials and the range of metals were 4mm which is very low and decided to increase to higher range.
  + We did research and found one with an 8mm distance range Inductive proximity sensor.
* Make the R3 prototype trash bin cut to fix all sensors
  + We used tools to cut the lid of the trash can and fixed LCD and Motion Detector and also Metal detector sensor.
  + Fixed the circuit box inside trash bin on one of the side walls with two screws attached to bin.

Next session’s Objectives:

* Integrating LCD module code and Motion Detector Code and Test
* Complete Motion Detector code
* Prepare Technical Presentation powerpoint slides

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04/03/2018

Agenda Items for Today:

* Integrating LCD module code and Motion Detector Code and Test
* Prepare Technical Presentation powerpoint slides

Progress on Agenda Items:

Task wise progress is as below

* Integrating LCD module code and Motion Detector Code and Test
  + Today, first we tested Motion Detector code and then added LCD code to this Motion sensor code and tested.
  + While testing, it was displayed on LCD panel as ‘Please Recycle!’ message when a metal was placed in-front of the Inductive proximity metal detector.
* Complete Motion Detector code
  + Completed Motion Detector code and tested separately.
* Prepare Technical Presentation powerpoint slides
  + Today we all together discussed together and finalized the Powerpoint template
  + Added Label slide first
  + Next we added below slides
    - Project Objective
    - Client Requirements
    - About Our Client
    - Gemma Evans
    - Engineering Design Process
    - Major challenges and correlating solutions
    - Modules Implementation
    - R3 Flow Diagram
    - Materials Needed
    - Prototype Demonstration
    - Testing approach and Results
    - R3 Efficiency (Graphs)
    - Test Data and Graphs for Non-Metal
    - Test Data and Graphs for Metal
    - Conclusion
    - Next Steps / Recommendations
    - Questions slide

Next session’s Objectives:

* Integrate Motion Detector code to already integrated code of Metal Detector and LCD
* Verify all items for 4/5/18 internal school competition with other Arduino projects
* Complete Project Report
* Practice Oral Presentation

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04/04/2018

Agenda Items for Today:

* Integrate Motion Detector code to already integrated code of Metal Detector and LCD
* Verify all items for 4/5/18 internal school competition with other Arduino projects
* Store code in GIT
* Complete Project Report
* Practice Oral Presentation

Progress on Agenda Items:

Task wise progress is as below

* Integrate Motion Detector code to already integrated code of Metal Detector and LCD
  + Successfully integrated Motion Detector code with already integrated code of Metal Detector and LCD
  + Tested successfully with all three modules integrated.
* Verify all items for 4/5/18 internal school competition with other Arduino projects
  + Verified Integrated code
  + Verified Technical Presentation
* Store code in GIT
  + Upload the complete R3 code to a source code repository (GIT)
* Complete Project Report
  + Successfully completed Project Report
* Practice Oral Presentation
  + We all practiced Oral Presentation for the scheduled 5 mins
  + Worked on Technical Interview
  + We are ready for tomorrow’s internal school demo

Next session’s Objectives:

* Work on Pitch Presentation

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04/11/2018

Agenda Items for Today:

* Work on Pitch Presentation

Progress on Agenda Items:

Today we are very happy that we got selected to represent Patapsco Middle School in Howard County MESA competitions.

We started working on the remaining items.

* Work on Pitch Presentation
  + Added Label slide first and then added the below slides
  + Problem Definition
  + Client and Expectations
  + Requirements and expectations for our device R3
  + Current Solutions and their Weaknesses
  + Choices Made for Prototype
  + Prototype Demonstration
  + Advantages of Prototype
  + Additional Advantages/Facts by R3
  + R3 Efficiency
  + Next Steps for Design that helps User
  + Questions slide

Next session’s Objectives:

* Fix bug in the code and perform complete R3 prototype integration testing.

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04/14/2018

Agenda Items for Today:

* Fix bug in the code and perform complete R3 prototype integration testing.

Progress on Agenda Items:

Task wise progress is as below

* Fix bug in the code and perform complete R3 prototype integration testing.
  + Fixed code for some bugs like not opening the lid sometimes and fixed the angle correctly
  + Fixed the number of seconds that trash bin lid to remain open.
  + Added Temperature sensor and displayed Temperature inside trash bin and also displays on the LCD
  + This Temperature sensor can be considered as third input sensor to match the MESA project requirements

Next session’s Objectives:

* Work on Poster Trifold
* Practice soldering

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04/15/2018

Agenda Items for Today:

* Work on Poster Trifold
* Practice soldering

Progress on Agenda Items:

* Work on Poster Trifold
  + Designed tri fold, where to display and what to display on the board.
  + Wrote the material in word document first and we also printed some images
  + Took prints of the material and images and sticked to the Trifold as per the decided template.
  + Successfully completed R3 Poster Trifold
* Practice soldering
  + We learned how to solder with the help of our coach
  + It was fun to do soldering and every team member got opportunity to to learn and do soldering.

Next session’s Objectives:

* Test again R3 prototype for 4/19/18 Howard County Regionals Competitions
* Practice Oral Presentation
* Practice Pitch Presentation

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04/18/2018

Agenda Items for Today:

* Test again R3 prototype for 4/19/18 Howard County Regionals Competitions
* Dry run of Oral Presentation
* Dry run of Pitch Presentation

Progress on Agenda Items:

Task wise progress is as below

* Test again R3 prototype for 4/19/18 Howard County Regionals Competitions
  + Successfully tested Metal and Non-Metal items
* Dry run of Oral Presentation
  + Dry run of Technical Oral presentation to check 5 mins time
  + Dry run of Technical Interview questions to check 11 mins of time
* Dry run of Pitch Presentation
  + Dry run of Pitch Presentation to check 20 mins of time.

Next session’s Objectives:

* MESA Day - Regionals on 4/19/2019

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04/28/2018

Agenda Items for Today:

* Technical Presentation Updates with Judges Rubric review comments
* Pitch Presentation updates with Judges Rubric review comments

Progress on Agenda Items:

Task wise progress is as below

* Technical Presentation Updates with Judges Rubric review comments
  + Collected more test data with more different items of metal and non-metal
  + Updated Technical presentation with latest test data and graphs
  + Did dry run of Technical Presentation and other team members provided review comments
  + Fixed the problems in Technical Presentation speeches.
* Pitch Presentation updates with Judges Rubric review comments
  + Updated Pitch presentation with latest test data and graphs
  + Updated the content for corrections
  + Did dry run of Pitch Presentation and other team members provided review comments
  + Fixed the problems in Pitch Presentation speeches.

Next session’s Objectives:

* Soldering the circuit instead of breadboard connections

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04/29/2018

Agenda Items for Today:

* Soldering the circuit instead of breadboard connections

Progress on Agenda Items:

* Soldering the circuit instead of breadboard connections
  + Spent ample of time to get comfortable to do proper soldering.
  + We did soldering for LCD module related circuit
  + Also we completed soldering of positive bus and negative bus

Next session’s Objectives:

* Learn more about GIT
* Verify all items related R3 project for 05/05/18 Howard County State Competitions

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05/01/2018

Agenda Items for Today:

* Learn more about GIT
* Verify all items related R3 project for 05/05/18 Howard County State Competitions

Progress on Agenda Items:

Update in learning GIT is as below

* Learn more about GIT
  + It is a source code repository
  + It is a free software tool
  + We learned about Tortoise GIT how it can be used to connect to GIT
  + Learned about how to upload the code to GIT and how to take it back from GIT
* Verify all items related R3 project for 05/05/18 Howard County State Competitions
  + Did dry run for R3 prototype demonstration
  + Dry run of Oral Presentation and checked Technical presentation and Technical Interview Rubric
  + Dry run of Pitch Presentation and checked Pitch presentation Rubric
  + Checked Poster Rubric

Next session’s Objectives:

* State MESA Day - 05/05/2018

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05/25/2018

Agenda Items for Today:

* Project Report modifications based on the MESA State competition judges rubric

Progress on Agenda Items:

Task wise progress is as below

* Project Report modifications based on the MESA State competition judges rubric
  + We tested with more metal and non metal items and updated project report test data.
  + We generated updated graphs with new test data
  + Update project report with new graphs
  + We also updated detailed low level budget on each and every small item we used for R3 prototype.

Next session’s Objectives:

* Crosscheck Notebook requirements for MESA National Competitions.

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05/28/2018

Agenda Items for Today:

* Crosscheck Notebook requirements for MESA National Competitions.

Progress on Agenda Items:

Notebook updates task is as below

* Crosscheck Notebook requirements for MESA National Competitions.
  + Verified the Notebook rubric and made sure the notebook is as per expectations.

Next session’s Objectives:

* Work on R3 Poster Presentation template (new requirement for Nationals)

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06/02/2018

Agenda Items for Today:

* Work on R3 Poster Presentation template (new requirement for Nationals)

Progress on Agenda Items:

We took long hours on this week end to complete R3 presentation as much as possible

* Work on R3 Poster Presentation template (new requirement for Nationals)
  + It was a challenge to fit the complete R3 Poster Trifold content in a single Powerpoint slide.
  + JHUAPL - Jason team helped us in guiding the ppt template requirements
  + We have used poster content which we saved earlier before MESA Regionals stored in word document also the saved images. This data helped us to use in Nationals Poster in single slide Presentation.
  + Finally we were able to complete R3 Poster presentation
  + Submitted to JHUAPL for review

Next session’s Objectives:

* MESA meeting with JHUAPL scheduled for 6/6/2018

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06/06/2018

Agenda Items for Today:

* MESA meeting with JHUAPL scheduled for 6/6/2018

Progress on Agenda Items:

* MESA meeting with JHUAPL scheduled for 6/6/2018
  + Got valuable information about the National MESA competition timelines
  + Gathering point and time on 19th
  + Competition slots and competition rooms on June 20th, 21st
  + Awards Ceremony day timelines.
  + We understood accommodation and Food guidelines
  + Received T-shirts by JHUAPL and will be distributed

Next session’s Objectives:

* Fix review comments on R3 Poster presentation

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06/09/2018

Agenda Items for Today:

* Fix review comments on R3 Poster presentation

Progress on Agenda Items:

* Fix review comments on R3 Poster presentation
  + Fixed all the review comments provided by JHU APL STEM specialist - Jason
  + Test print of the final R3 Poster in a paper.
  + Submitted the final version to Jason

Next session’s Objectives:

* Fix minor issues in R3 prototype circuit
* Soldering the circuit instead of breadboard

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04/03/2018

Agenda Items for Today:

Progress on Agenda Items:

Task wise progress is as below

Next session’s Objectives: