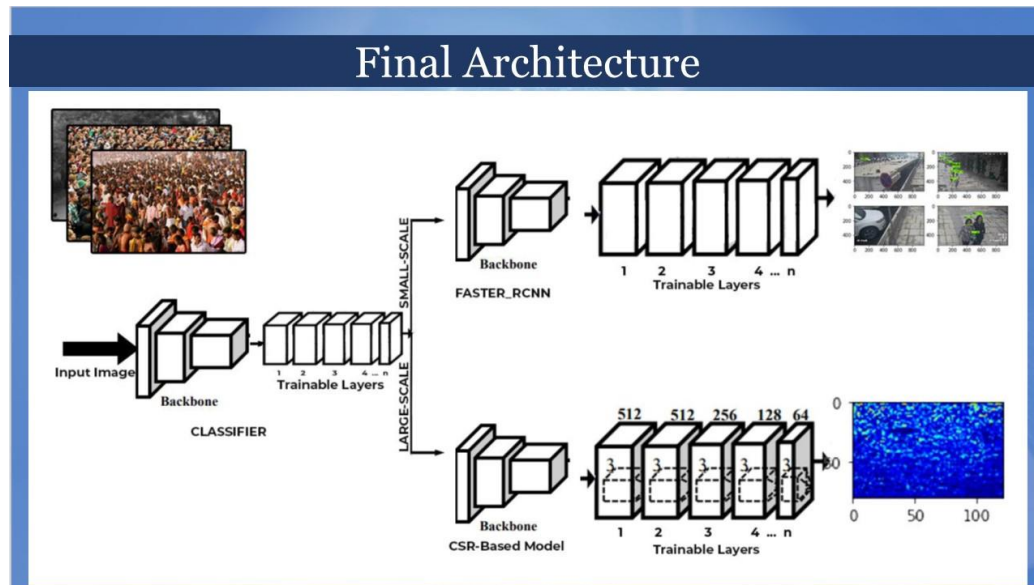
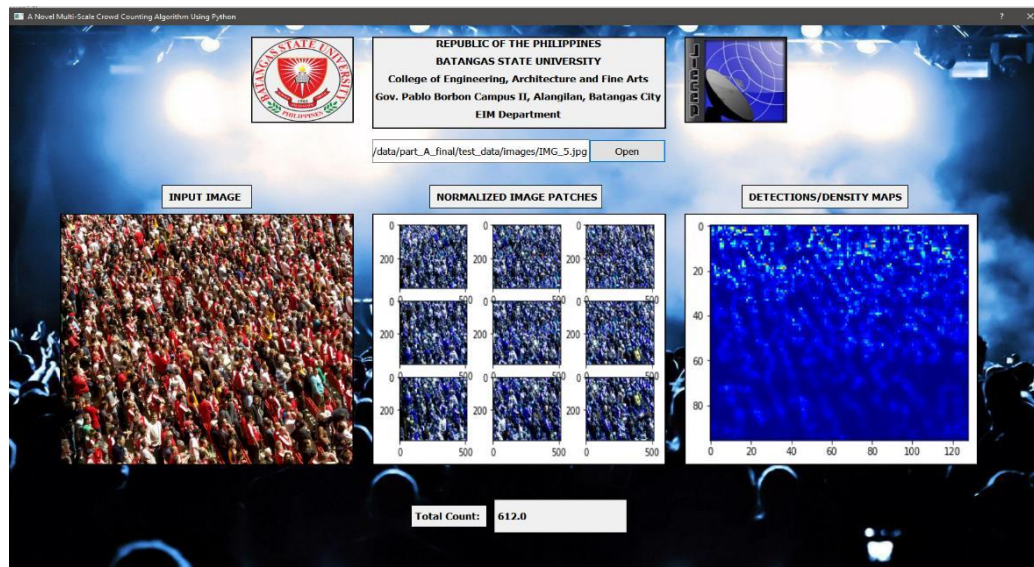


Technologies used: *Python, Keras, Tensorflow, OpenCV*

- Created a scale-adaptive algorithm that can count crowds from sparse (0-20) to dense (100-3000+) human heads in a still image.
- Used 3 backends models for deep learning such as VGG-16, Inception V3, Resnet101 to maximize the capability of each model in varying crowds
- Used PyQt for the User Interface and for simplicity of use

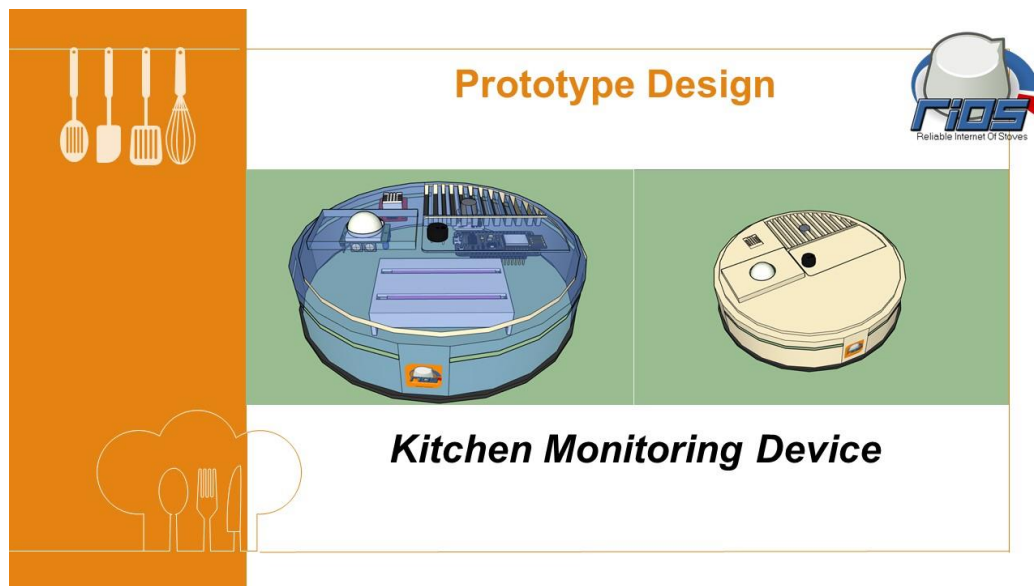
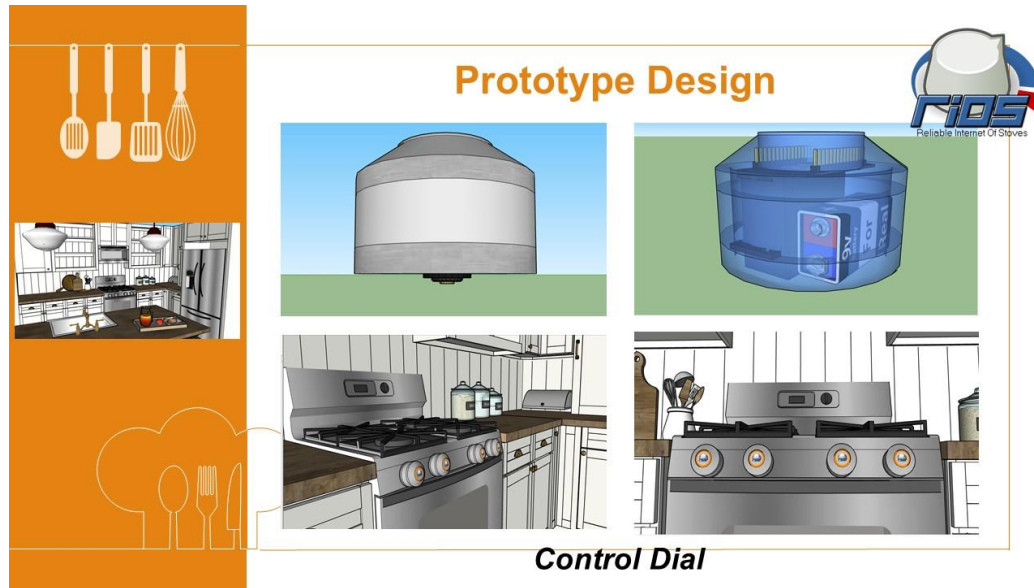




**Technologies used:** Google Firebase, Sketchware, Google Speech Recognition (speech-to-text)

**Hardware used:** ESP8266 Wifi, Arduino Mini, Gas Sensor, High-heat sensor, Smoke Sensor

- Designed and created a working prototype of a stove dial that can be installed in gas stoves which can be controlled using an android app. The following controls can be used by a user:
  - Speech Commands (To turn High, Medium, Low heat, and off)
  - Manual Interactive Control
  - Schedule Timer
- On par with the dial, it has a monitoring prototype that will detect excessive heat, smoke, and gas and send warning alerts to the user and automatically turns the dial to off.



## Mobile Application



Mock Up

## Voice-activated Control



## Mobile Application



Kitchen  
Monitoring



### Project 3: Water Level Monitoring System for Calumpang River, Batangas City

2018

Technologies used: *Python, MySQL,*

Hardware used: Raspberry Pi 4, Extended Ultrasonic Sensors

- Created a prototype and is modeled to be installed under Calumpang Bridge that will be able to monitor the water level especially during heavy rains that causes flood.
- The prototype sends data to its local MySQL database

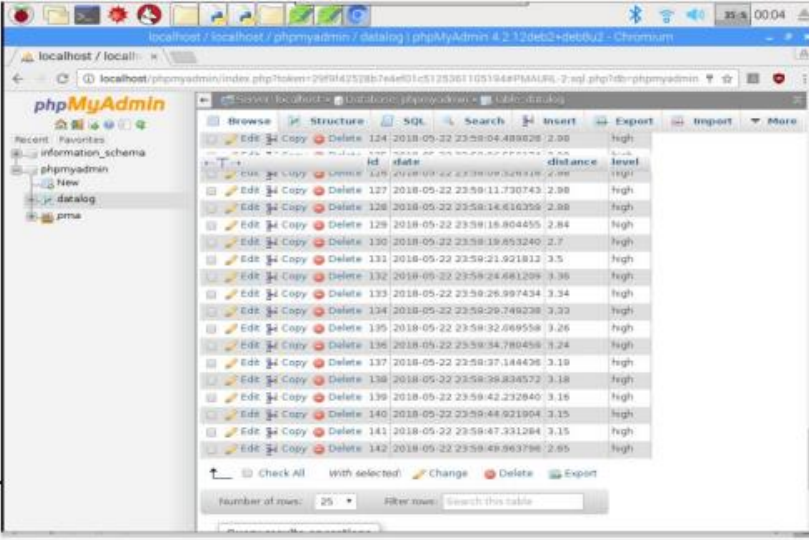
## 3D MODEL: INSTALLATION



## OUTPUT



# RESULTS: DATA TO LOCAL DATABASE



The screenshot shows the phpMyAdmin interface in a web browser. The left sidebar displays the database structure, including 'information\_schema', 'phpmyadmin', 'New', 'datalog', and 'pma'. The main panel shows a table with 25 rows of data. The table has columns for 'id', 'date', 'distance', and 'level'. The data is as follows:

id	date	distance	level
124	2018-05-22 23:58:04.489028	2.98	high
125	2018-05-22 23:58:09.329118	2.98	high
126	2018-05-22 23:58:11.730743	2.98	high
127	2018-05-22 23:58:14.616355	2.98	high
128	2018-05-22 23:58:16.804455	2.84	high
129	2018-05-22 23:58:18.853240	2.7	high
130	2018-05-22 23:58:21.921813	3.5	high
131	2018-05-22 23:58:24.681229	3.36	high
132	2018-05-22 23:58:26.997434	3.54	high
133	2018-05-22 23:58:29.749238	3.33	high
134	2018-05-22 23:58:32.689558	3.26	high
135	2018-05-22 23:58:34.780458	3.24	high
136	2018-05-22 23:58:37.144436	3.19	high
137	2018-05-22 23:58:39.834572	3.18	high
138	2018-05-22 23:58:42.232940	3.16	high
139	2018-05-22 23:58:44.921904	3.15	high
140	2018-05-22 23:58:47.331284	3.15	high
141	2018-05-22 23:58:49.963798	2.95	high
142	2018-05-22 23:58:52.597118	2.95	high
143	2018-05-22 23:58:55.230438	2.95	high
144	2018-05-22 23:58:57.863758	2.95	high
145	2018-05-22 23:59:00.497078	2.95	high
146	2018-05-22 23:59:03.130398	2.95	high
147	2018-05-22 23:59:05.763718	2.95	high
148	2018-05-22 23:59:08.397038	2.95	high
149	2018-05-22 23:59:11.030358	2.95	high
150	2018-05-22 23:59:13.663678	2.95	high
151	2018-05-22 23:59:16.296998	2.95	high
152	2018-05-22 23:59:18.930318	2.95	high
153	2018-05-22 23:59:21.563638	2.95	high
154	2018-05-22 23:59:24.196958	2.95	high
155	2018-05-22 23:59:26.830278	2.95	high

## Project 4: Library Inventory Management System

2018

Technologies used: C#, HTML, CSS, JavaScript, MySQL, MS Access

- Two versions were created: A desktop app and A web app
- This was created to modernize the manual processes of bookkeeping and other records and store them on a deployable MySQL database (web) and local database (desktop app)



Admin Access



LoginUser



Saturday, 26 May 2018 11:34:18 AM

Username:

Password:

Email:

UserAction

# GCBC INVENTORY

 Borrow
  Return
  Home

SELECT ACTION

User Access

BorrowForm

## GCBC INVENTORY

### Borrow Form

ENTER BOOK INFO TO BORROW

Book Number:

Book Type:

Date Borrowed:



Remark:

Checked By:

Location:

Serial Number:

Publisher:

#### LIST OF BOOKS

LOAD LIST

BookNumber	BookType	Remarks	Location	SerialNumber
0103	Science	Borrowed	Batangas	978-3-15-148410
0102	Science	Borrowed	Batangas	978-3-15-148410
0104	Science	Returned	Batangas	978-3-15-148410
0105	Science	Returned	Batangas	978-3-15-148410
0106	Science	Returned	Batangas	978-3-15-148410

Returned Books - Available to be Borrowed

#### BORROWED BOOKS LIST

LOAD LIST

BookNumber	BookType	DateBorrowed	Remarks	ReleasedBy
10787451	Science	a	Borrowed	Admin
0103	Science	Saturday, 26 May...	Borrowed	admin

ReturnForm

## GCBC INVENTORY

### Return Form

ENTER BOOK INFO TO RETURN

Book Number:

Book Type:

Date Returned:



Remark:

Checked By:

Location:

Serial Number:

Publisher:

#### RETURNED ITEMS

LOAD

BookNumber	BookType	DateReturned	Remarks	ReleasedBy
16465412	Science	25/08/18	Returned	Admin
46512	Romance		Returned	Admin
4843154	Science	Saturday, 26 May...	Returned	admin



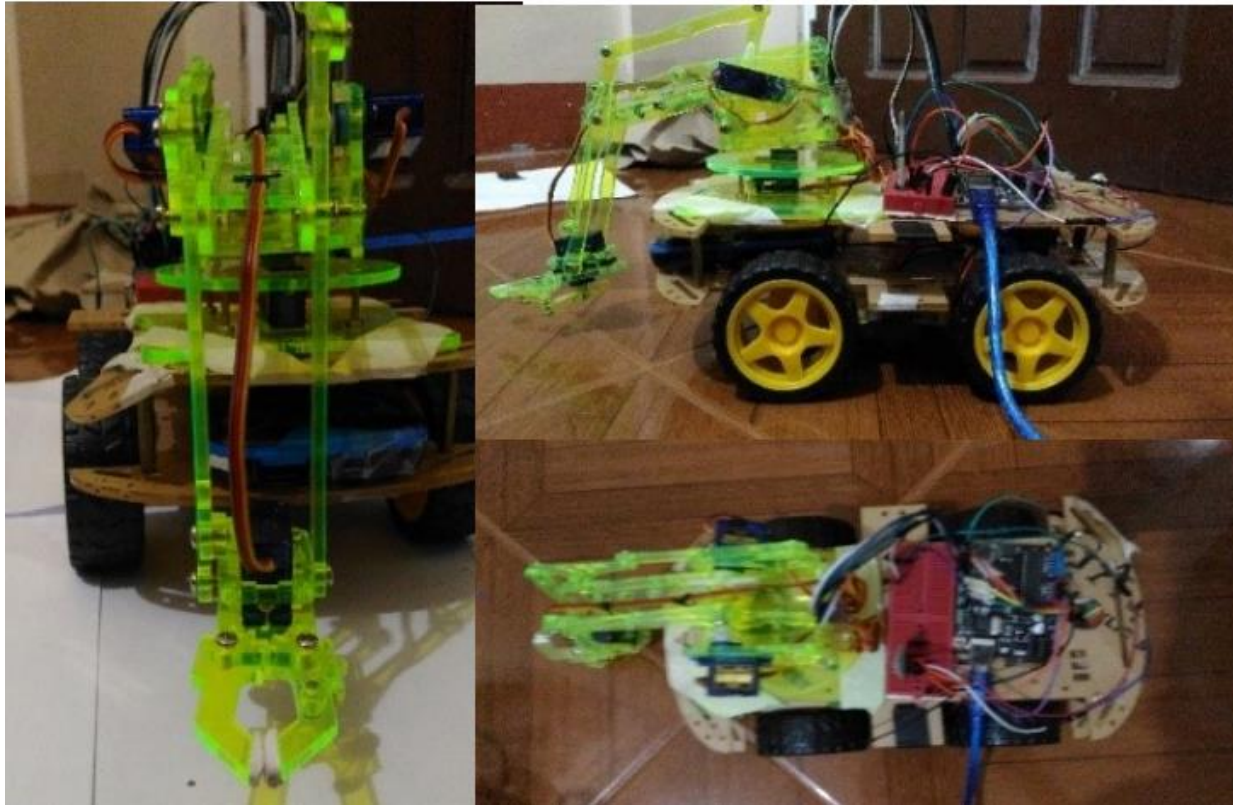
### Project 5: 4WD Robotic Claw Arm Interfaced with LabVIEW

2017

**Technologies used:** LabVIEW, C/C++

**Hardware used:** Arduino Uno, Bluetooth Module, Motor Driver, DC Motors. Acrylic Robotic Claw Arm

- Created a mobile 4-wheeled robotic arm with 6 degrees of freedom that can be used for handling corrosive or harmful chemicals.
- 



## Project 6: BatStateU-PQMS (Paperless Queue Management System)

2018

Technologies used: Visual Basic, MS Access

Hardware used: USB Internet Dongle

- Created a program that can accommodate customers and alert them through SMS whenever they are few turns away from the currently served ticket number.

The main interface of the BatStateU PQMS is displayed in a window titled "Select Office". It features the Batangas State University logo at the top center. The date "DATE: 06/12/2017" is shown on the left, and the time "TIME: 11:27:02 PM" is on the right. Below the logo, the text "WELCOME TO BATSTATEU PQMS!" is centered. On the left side, there is a section for the "CASHIER" with the text "NOW SERVING: C-0001". On the right side, there is a section for the "REGISTRAR" with the text "NOW SERVING: R-0001". In the center, there is a "Select Office for Transaction" window with two options: "CASHIER" (represented by a calculator icon) and "REGISTRAR" (represented by a checkmark icon). At the bottom, a red banner reads "BATSTATEU - LEADING INNOVATIONS, TRANSFORMING".

The image shows two sub-interfaces of the BatStateU PQMS. The left interface is titled "CASHIER" and the right interface is titled "REGISTRAR". Both interfaces have a red background and the Batangas State University logo at the top left. They both feature input fields for "Name:", "SR CODE:", and "Phone Number:". Below these fields are buttons for "ADD NEW ENTRY", "UPDATE", "CLEAR", and "DELETE". The "CASHIER" interface also has a "Home" button. The "REGISTRAR" interface has a "Home" button and a "Student Database" button at the bottom.