

PUA



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Faculty of Applied Health Science Technology



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اتباعاً لنهج جامعة فاروس الموقرة على استمرارية
فكرة أ. محمد رجب (رحمة الله) بشأن المشروعات البحثية المجتمعية واتباع
الكلية لهذا النهج نقدم لسيادتكم والسادة الحضور هذا المشروع البحثي

Smart Speaking Glove

(SSG)

قفاز التحدث الذكي





*Supervised By : Assoc.Prof.Mohamed Badawi
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Students:

201800005 :Alaa Mohamaden

201800007 :Elshaimaa Elhemily

201800100 :Younna Nabil

201800012 : Sara Gamal Eldeen



شاهد.. السيسي يحيي فرقة من الصم والبكم بلغة الإشارة



- People of determination live in their brightest eras, in light of an unprecedented interest and great belief from **President Abdel Fattah El-Sisi** in their abilities and capabilities in shaping the nation's present and future.



- Over the past seven years, the **Egypt placed people with special needs at the forefront of its priorities** and has worked to meet their demands, integrate them into society and make the best use of their talents and energies.



الرئيس السيسي لـ«أحد شباب ذوي الهمم»: فخور بكم جدًا ورسالتك هنقولها كثير عشان الناس كلها تسمعها | فيديو

6-12-2021 | 21:09



وفي الفيديو، طالب أحد شباب ذوي الهمم الرئيس عبدالفتاح السيسي، بأن تكون هناك مساواة بين الشباب الناطق والصم غير القادرين على الكلام، لافتًا إلى أن الناطقين يجيدون قراءة الشفافة لكنهم يتعاملون معهم على أنهم لا يدركون ما يقولون، متابعا بالقول: لازم المتكلمين يبقوا عارفين حقوق الصم ويبقى فيه مساواة.

وقال للرئيس السيسي: أتمنى أن يحصل الصم على كل الفرص المتاحة لغيرهم من الناطقين والمتكلمين.

Project Phases:

- **Define the problem:** person with disability (deaf and dumb) faces difficulty in communication with normal person.
- **Design:** Purchase of components, circuit design, and programming

Project Phases:

- **Implementation:** A **Functional Prototype** is a sample or model of a product built to test a concept and the process of the project.
- **Evaluation:** Determine the accuracy of the project, and comparing its cost with what available in market.

01

Introduction

02

Aim of the work

03

***Materials and
methods***

04

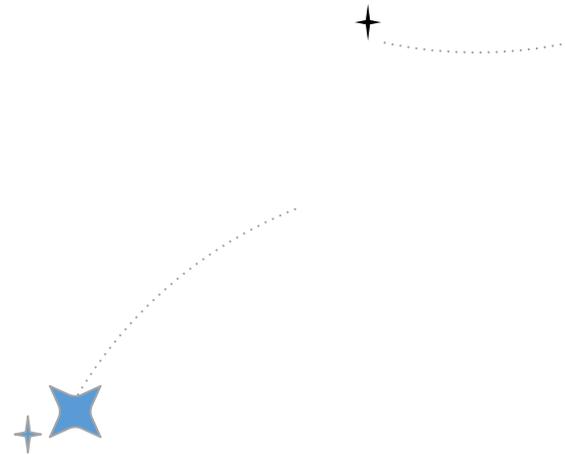
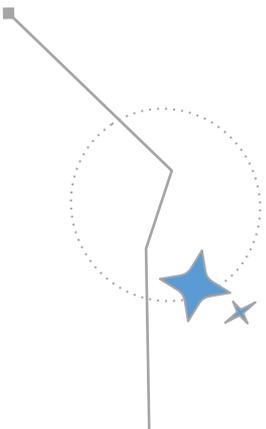
***Results and
discussion***

05

Conclusion

01

Introduction



Communication is the only medium by which we can share our thoughts or convey the message **but for a person with disability (deaf and dumb) faces difficulty in communication with normal person.**

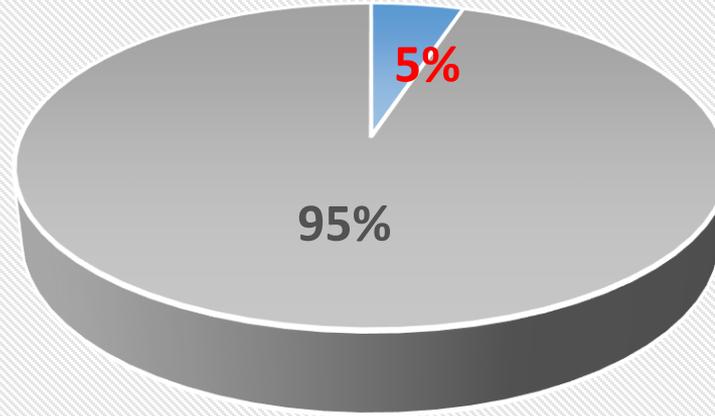


According to the World Health Organization states that **5% of people has suffering from dumb and deaf**

The rate of dumb and deaf people



Rates



- The rate of people who's suffering from dumb and deaf around the world
- The rate of people who's not suffering from dumb and deaf around the world

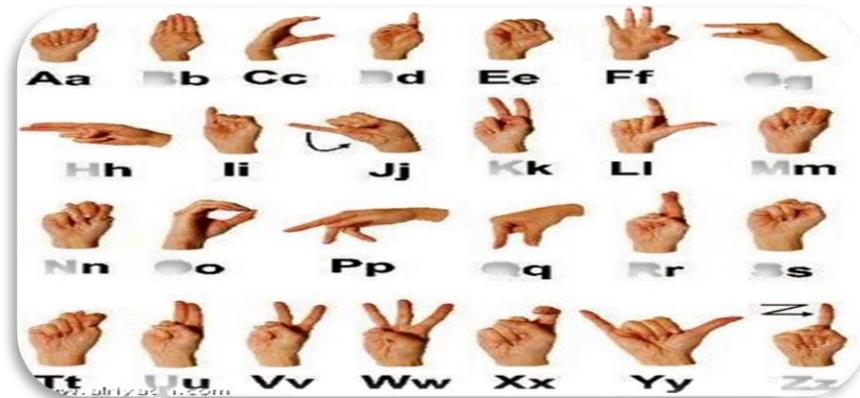
The rate of dumb and deaf people

- Also, According to the United Nations 2019, **7% of Egyptian people suffering from dumb and deaf in Egypt**



Sign language:

Because of the difficulty of communicating with the deaf and dumb a language called sign language was invented.





02

Aim of the work

Because **not everyone understands sign language** and with the **development of technology**, there are new ideas to solve the problem of the deaf and dumb, which is **the smart speaking glove**.



Definition of smart speaking glove:

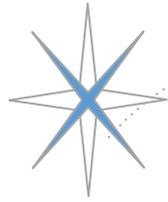
It is a glove that a deaf and dumb person wears to convert sign language into words that we can hear and read.



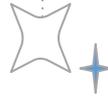


03

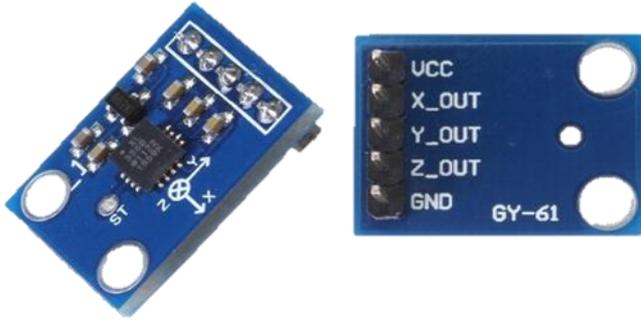
Materials and methods



Component



Sensors



Accelerometer

The Accelerometer
Measures The Static
Acceleration (**X,Y,Z**)



Flex Sensor

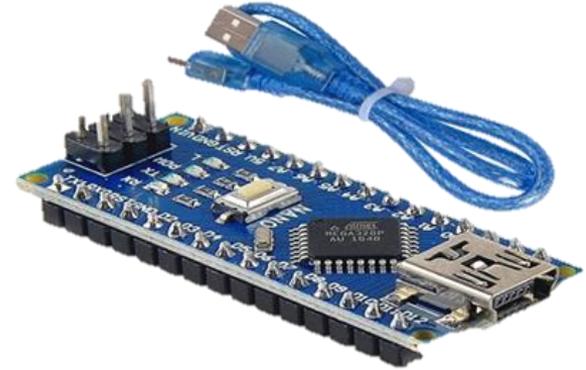
Is a **variable resistor**, which
measures the amount of
deflection or bending it
undergoes

Microcontroller



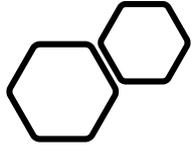
Bluetooth Module

Bluetooth protocol used for wireless communications of less than 100 meters.



Arduino Nano

Microprocessor



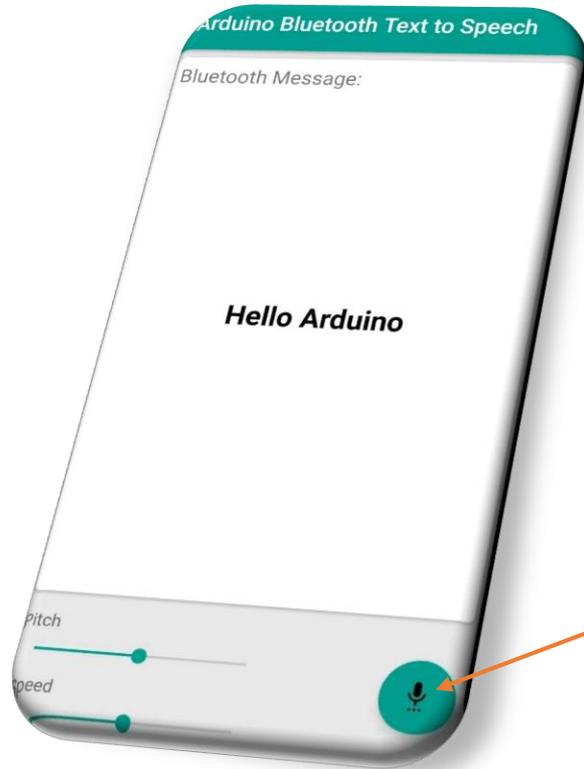
Google Play



- *Software Interface*

Application uploaded
from Google Play

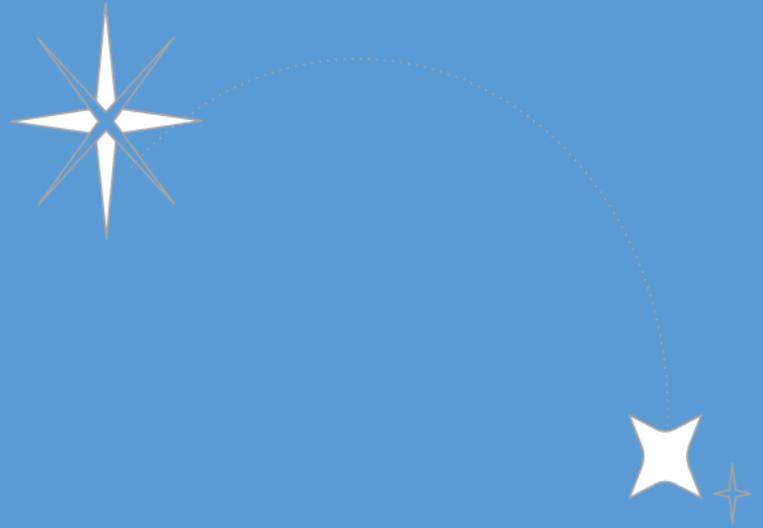
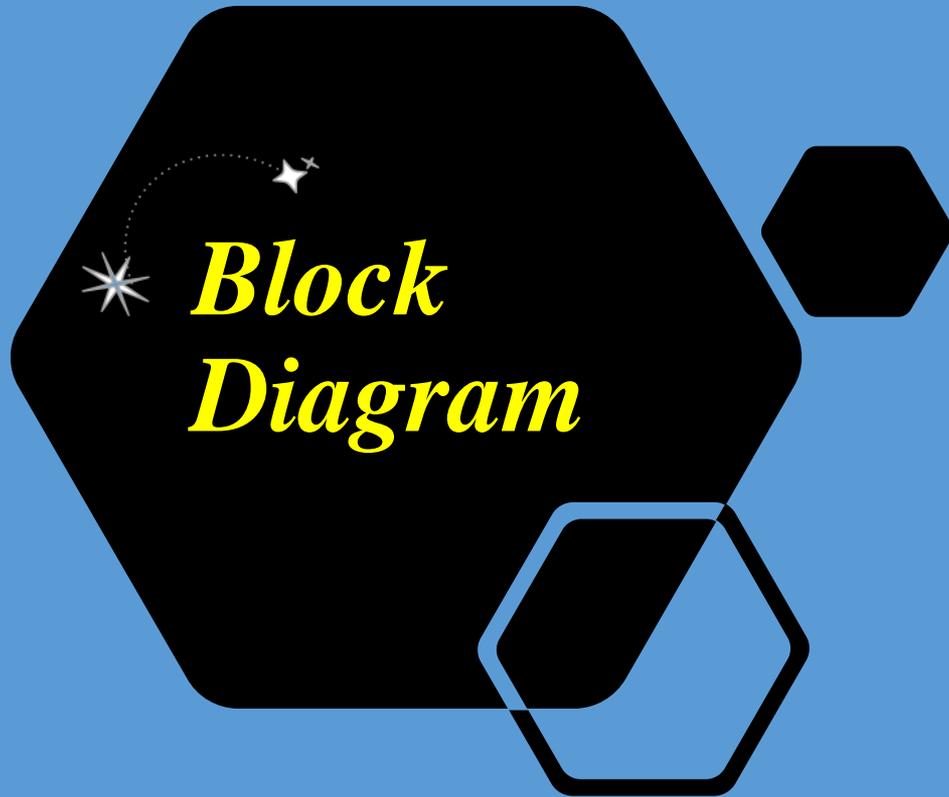
Application interface

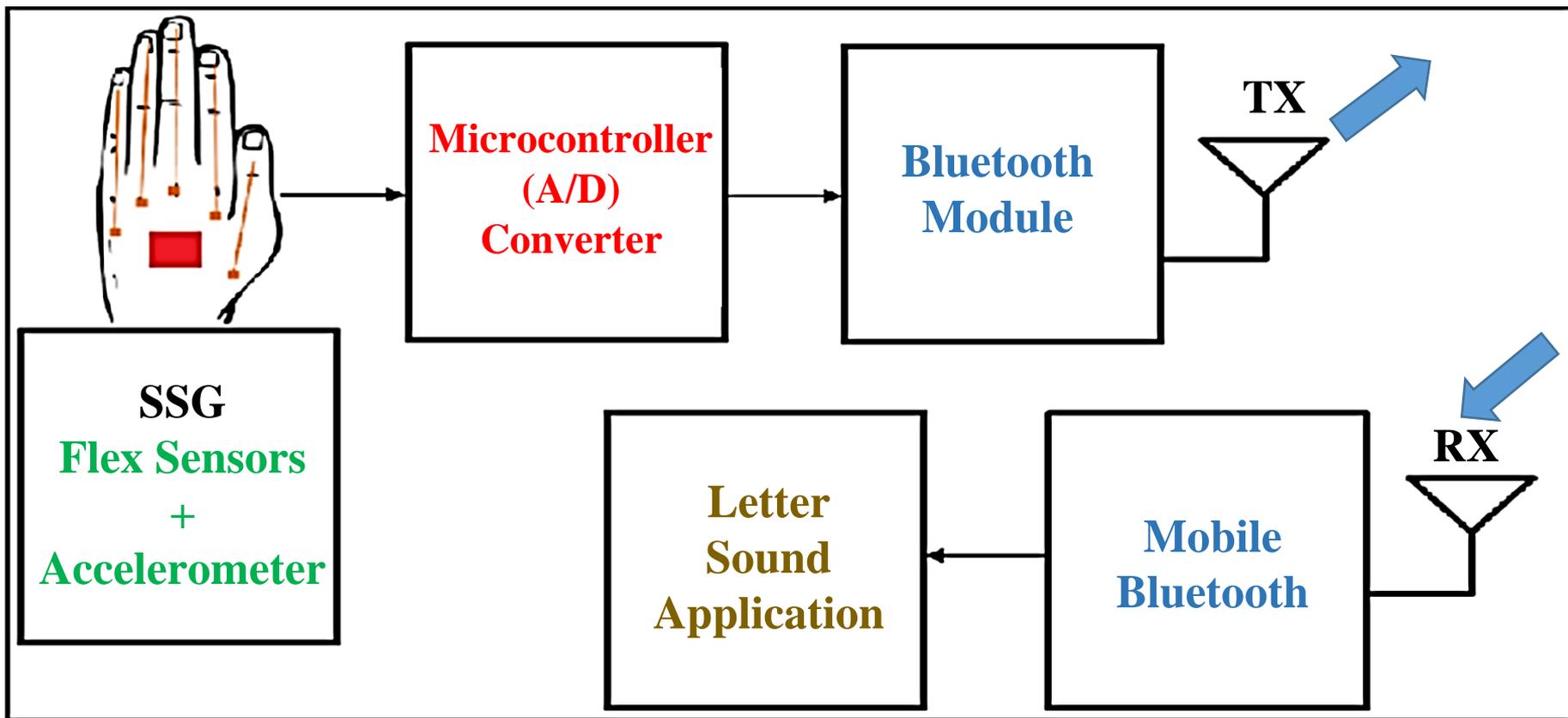


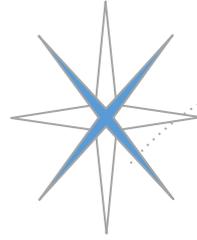
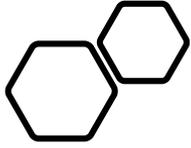
As we can see , the interface of the application is appearing as a **message** that user want to say. and also can make **sound** to help others people understand

We can **repeat the message by pressing the mic icon**

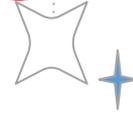


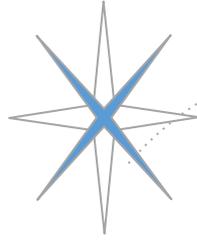




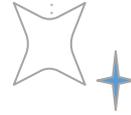


Instrument Programing





Setup

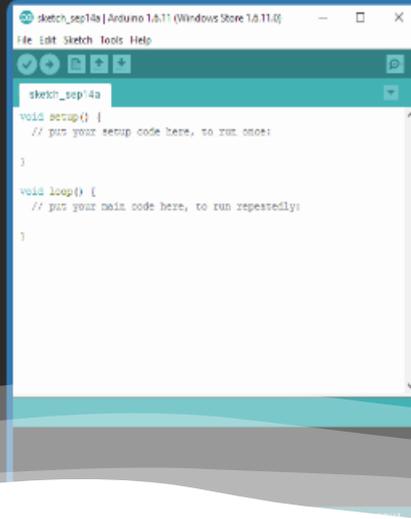




Arduino IDE

Arduino LLC

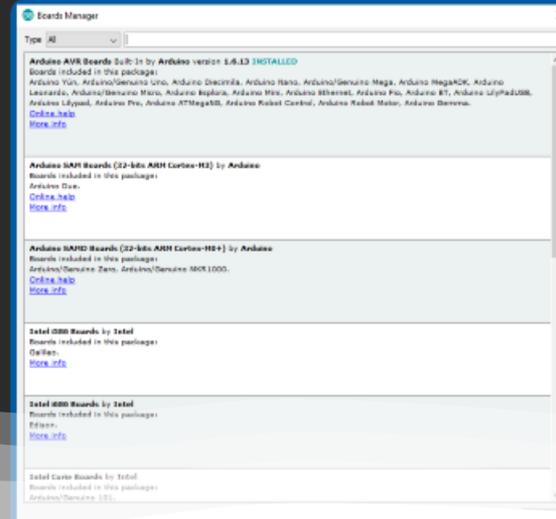
Install



A screenshot of the Arduino IDE code editor window. The title bar reads "sketch_sep14a | Arduino 1.8.11 (Windows Store 1.0.11.0)". The menu bar includes "File", "Edit", "Sketch", "Tools", and "Help". The code editor shows the following code:

```
sketch_sep14a
void setup() {
  // put your setup code here, to run once:
}

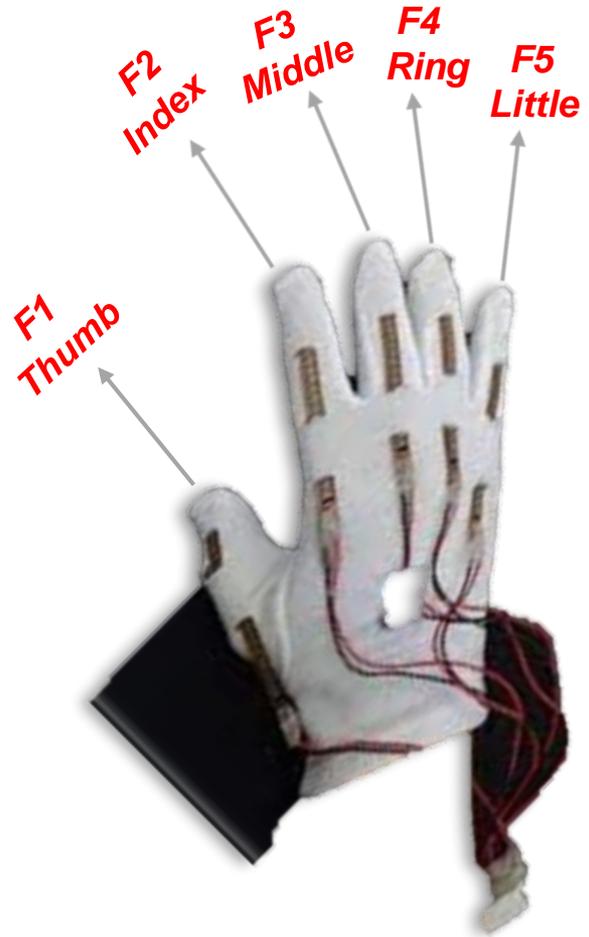
void loop() {
  // put your main code here, to run repeatedly:
}
```



1- We used the Arduino IDE source to create the code (Program)

2- Define the inputs :

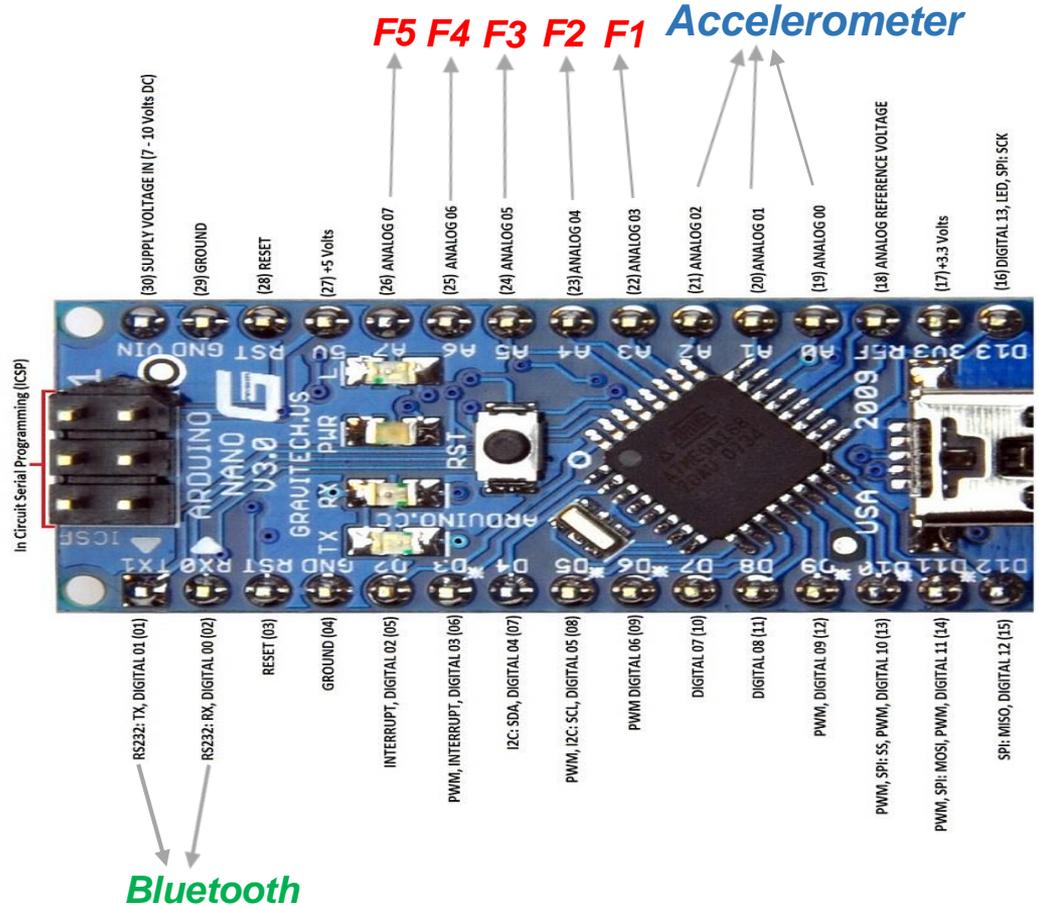
- Arduino pins
- Sensors
- Accelerometer
- Bluetooth



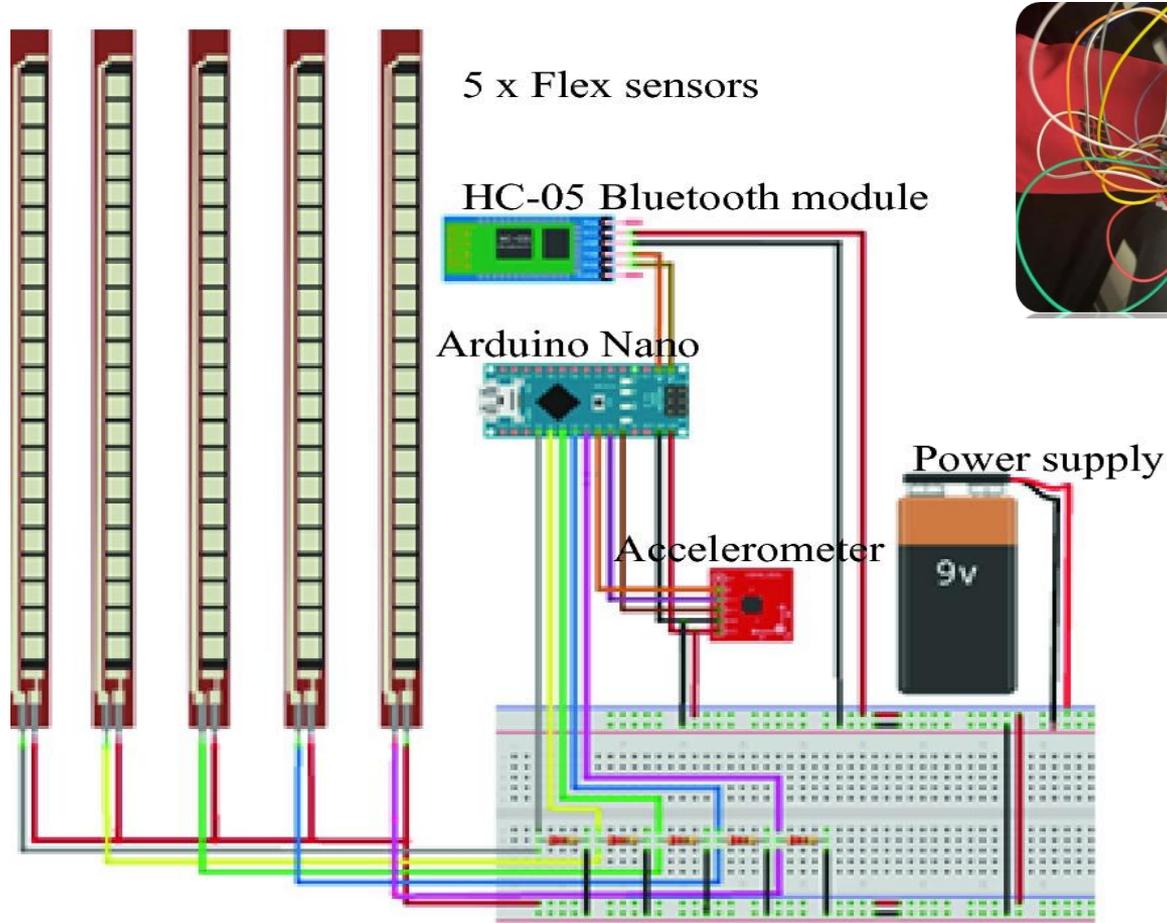
- Arduino Nano

Pins that used

- Analog I/P = 5
Flex senser
(F1:F5) +
Accelerometer
(x,y,z)
- Bluetooth : TX,
RX data
- Power : 9v



Arduino Nano V3 - Pin Description
www.CircuitsToday.com



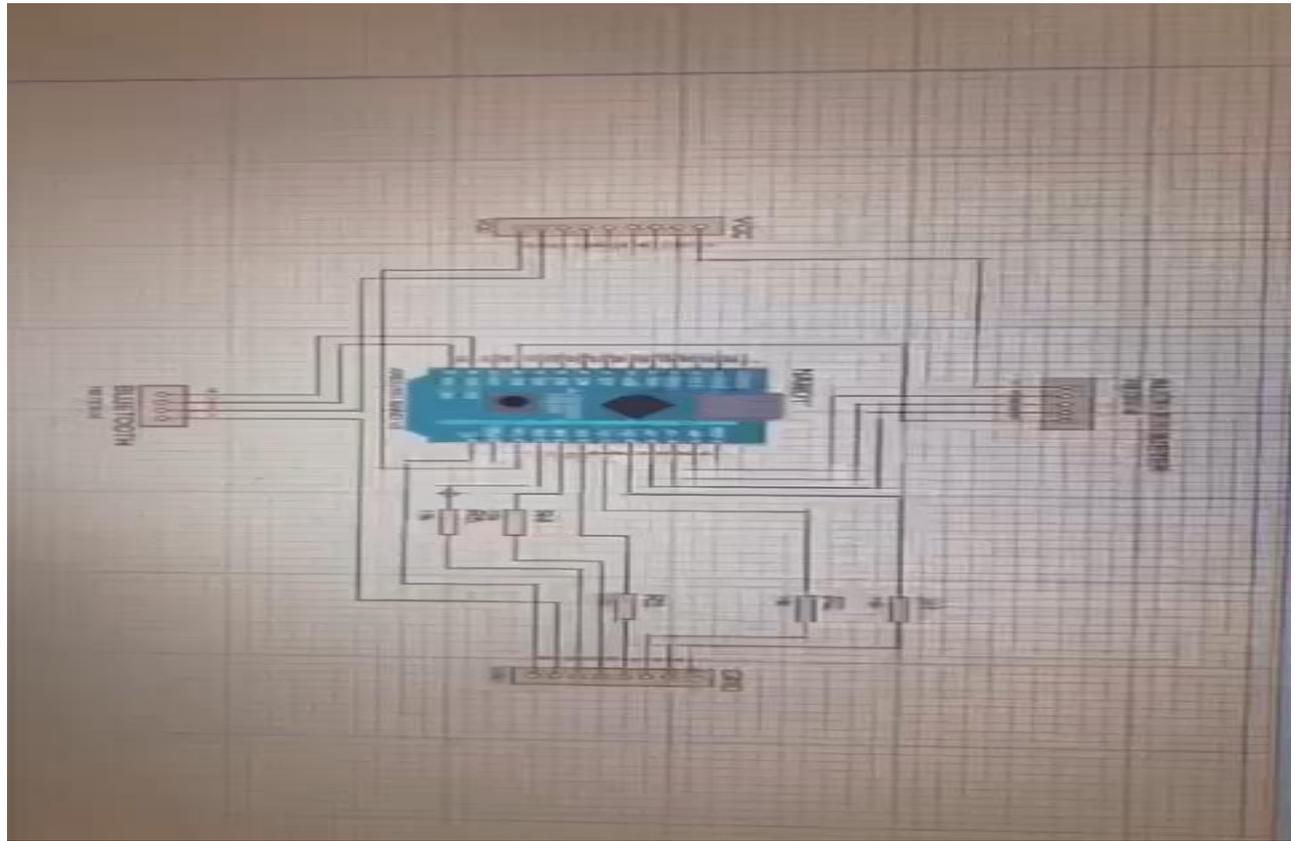
3- Sensor Calibration and Mapping:



04

*Results and
discussion*





We will present a video of SSG :

Letter A

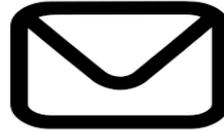
Letter T

Thank you

I love you

Our project about Smart Speaking Glove

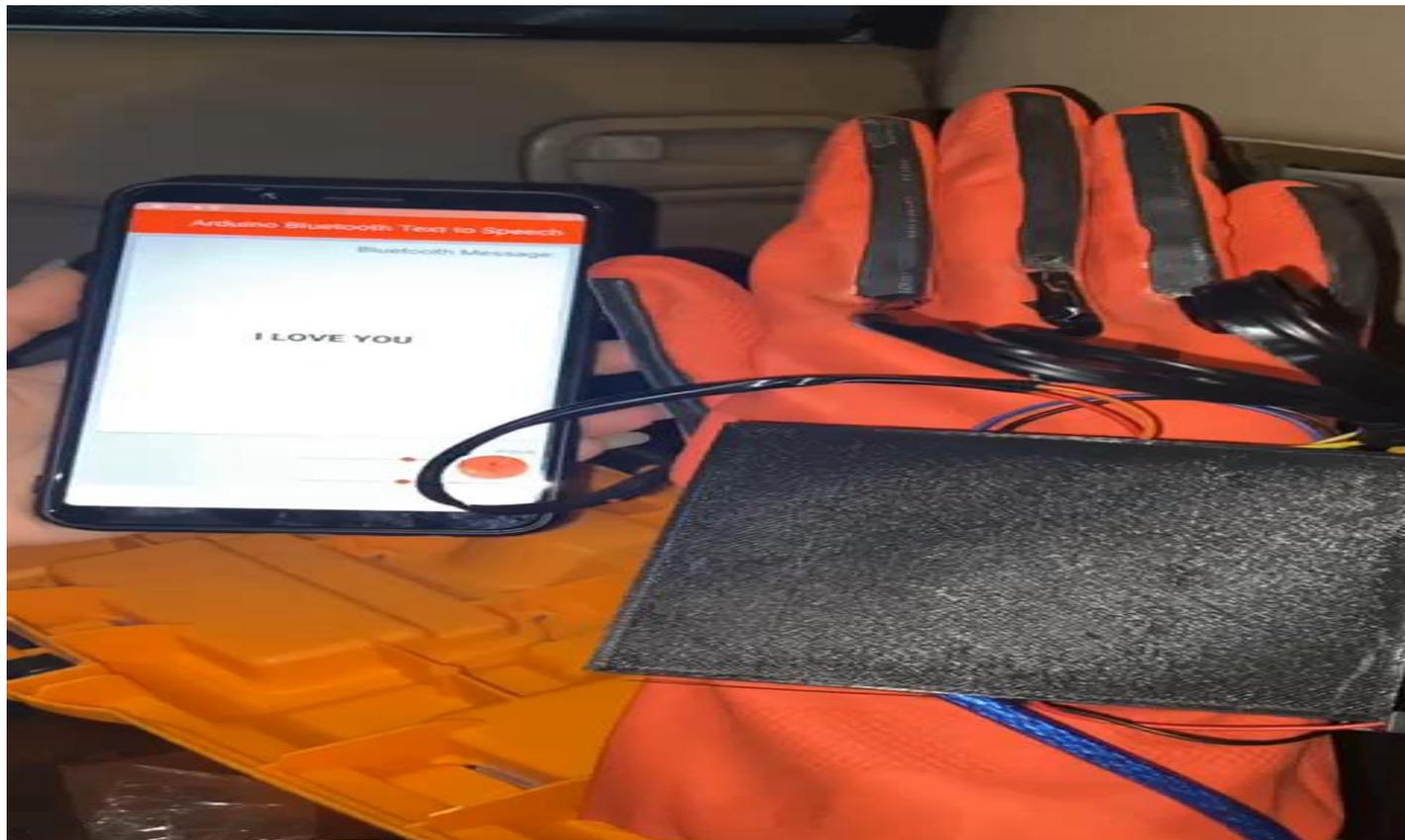
Our Team are Elshaimaa / Youmna / Alaa/ Sara



A



I love you

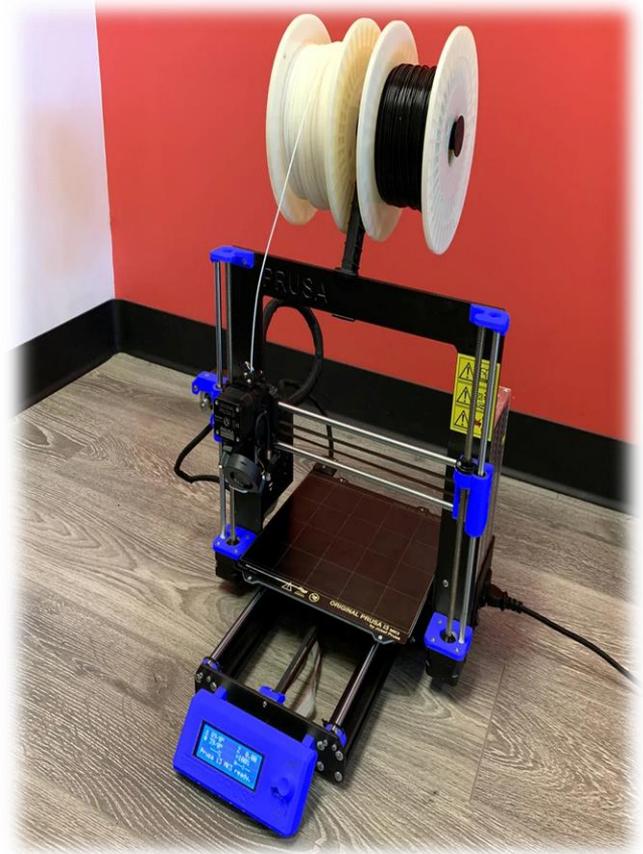




Ziad Ahmed

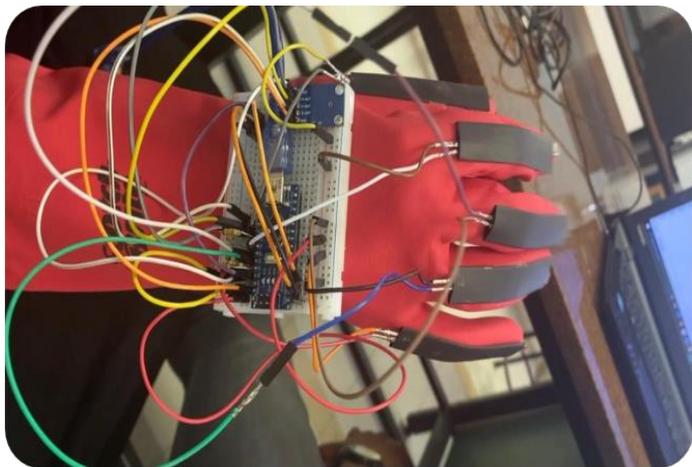
T.A. Ziad Ahmed used a 3D printer to manufacture a case for an electronic component

The 3D printer were his graduation project 2020.





Component	Price
Arduino Nano	125 EGP
ADXL335 3-axis Accelerometer Module	180 EGP
5 Flex/Bending Sensor 2.2" SF10264	1225 EGP
Power source	50 EGP
Bluetooth Module HC-05	100 EGP
5 Resistor 15K Ohm 1/4 Watt 5%	1 EGP
Heat Shrink Tubing 8mm (1m)	6 EGP
Silicon glove	25 EGP
PCB board 6X5	20 EGP
Wires	15 EGP
Total	1941 EGP



Accuracy : 90%
Cost + Profit =
130\$ = 3000 EGP



Accuracy : 95%
3000 \$ = 70000 EGP





تم عرض المشروع على مركز
الإعداد المهني وزيادة الأعمال
خلال

فصل الصيف 2021 / 2022

Conclusion



To help people struggling with deaf-mutism communicate with anyone easily, we invented the Smart **Speaking Glove at the lowest cost possible, 1941 EGP.**

Future plan



05

1

漢語
汉语
中文

Mi corazón dice 'sí', yo digo
'no sé', y mi mente dice
'Bésala'

2





THANK YOU

THANK YOU

