

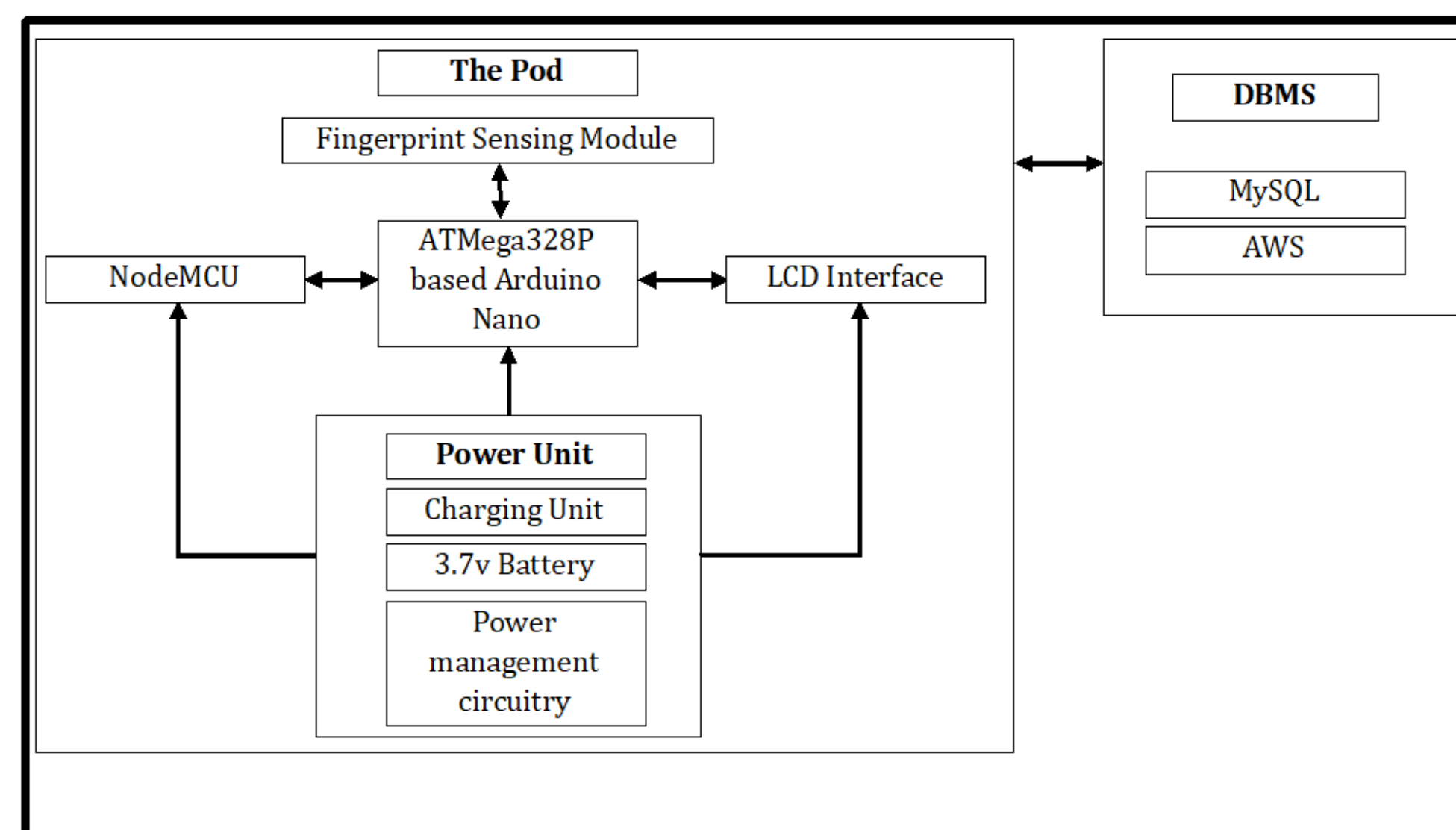
# BIOMETRIC ATTENDANCE SYSTEM USING FINGERPRINTS FEATURING IOT

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## OBJECTIVES

- 1 To create an attendance registry system which would use biometric parameters to take attendance and then upload the results onto a central database.
- 2 To successfully identify the students by using their fingerprints
- 3 To successfully update the database using IOT
- 4 To successfully provide a user friendly environment to access the data

## BLOCK DIAGRAM



**1. POD** includes five functional units-

- (i) Arduino Nano ( Central Unit)
- (ii) ESP8266 WiFi module
- (iii) Fingerprint sensor [GT-511c3]
- (iv) LCD and push button interface

**2. POWER UNIT** A LiPo 3.7V, 1100mAh along with power management IC TP-4056 is used to charge the pod.

**3. DATABASE** It holds the attendance data of all students. The database is hosted on Amazon web services(AWS). Where we are using an Relational database System (RDS). The attendance data is displayed using ODBC connector in excel, where we can query the required data needed.

## METHODOLOGY



Figure 1: Fingerprint Sensor

The fingerprint sensor will verify the finger and if its in the database will store it in the memory of the esp8266. On getting triggered to upload the data it will send the stream of data to the php pages.

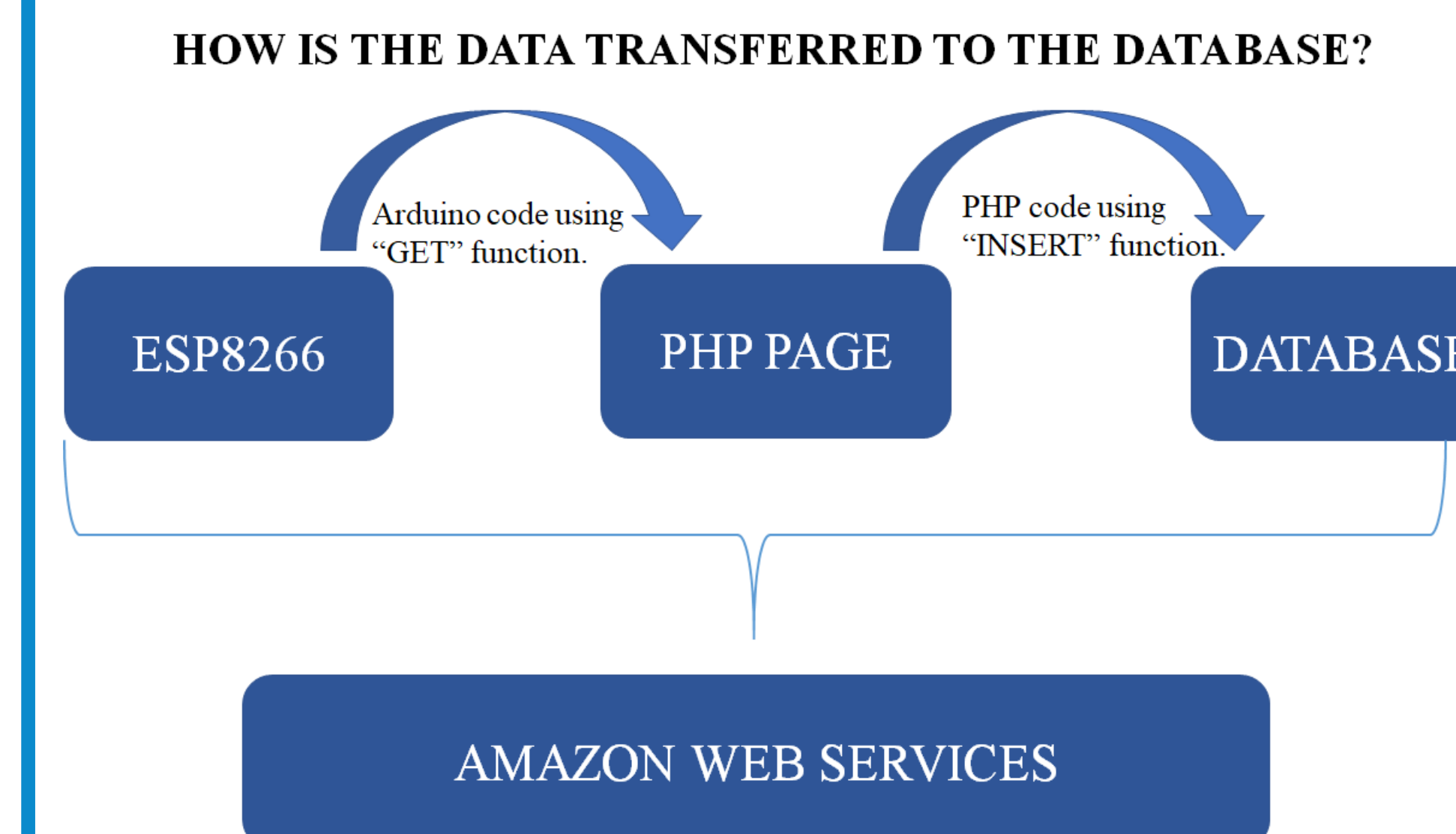
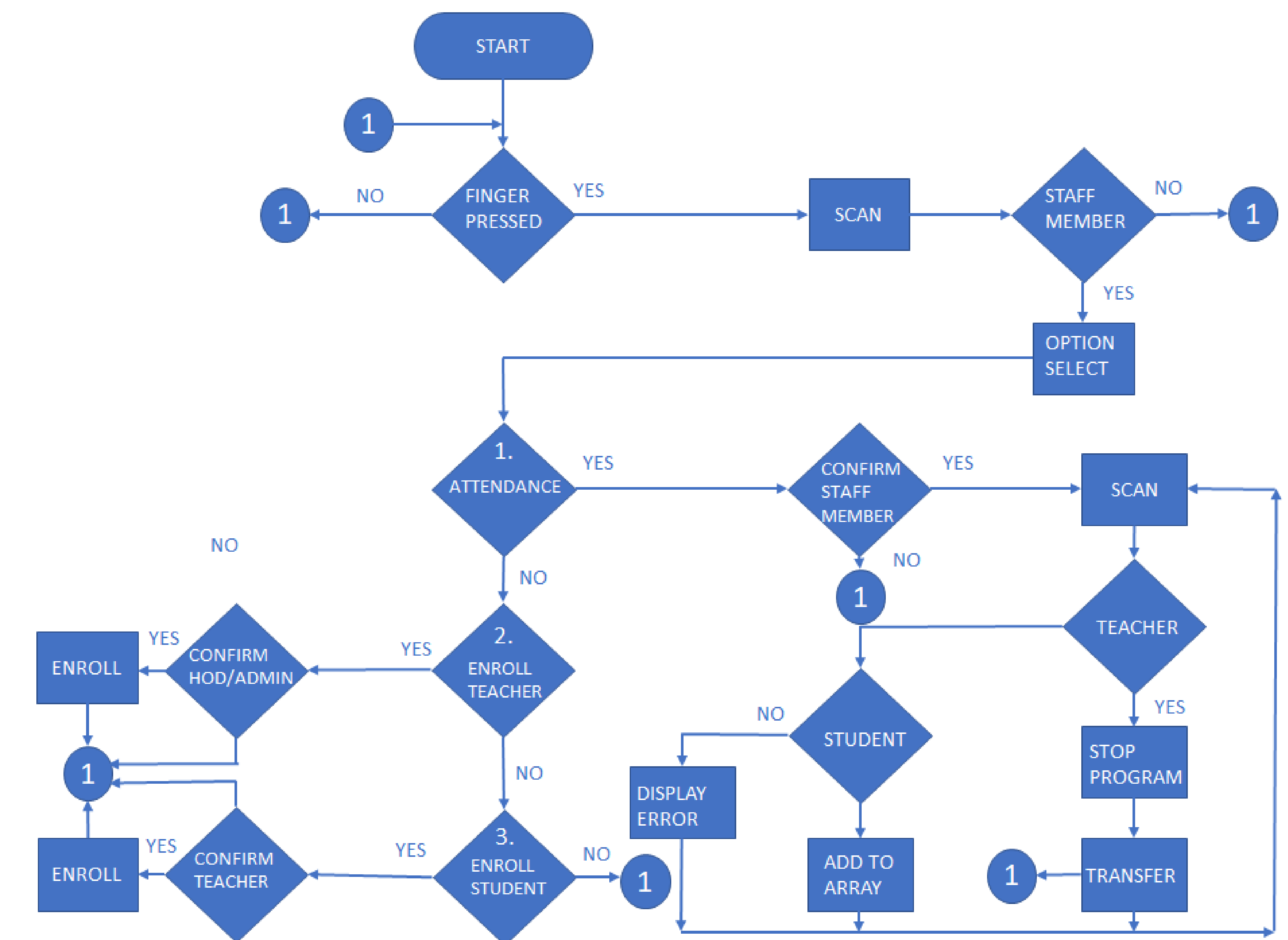


Figure 2: Database pathflow

The esp8266 WiFi module connects to the local area network and is ready to send data through the internet. The data is sent to a PHP page and this data is sent using certain primary key words like GET which call the PHP page and then we insert our data into the PHP page. The PHP code has a function called INSERT, which inserts the sent data into the database. We are using AWS RDS to store our data and the PHP pages are stored in Webhost.

## FLOW CHART



## CONCLUSION AND FUTURE REASEARCH

With this new system there will be:

- (i) Reduction, if not complete removal of false attendance entries.
- (ii) Portability of attendance device.
- (iii) Reduced load on teachers to maintain attendance registries.
- (iv) Easy to manage the whole class/individual students attendance as we get the ready made attendance card for the student on a click of a button.
- (v) Extremely secure database and no issue of tampering can occur.

Therefore now instead of using huge registers for maintaining attendance, the vast amount of data is now simply stored in the database and the program executes and handles all the tedious manual labour that teachers would do earlier.

In the future attendance will be more efficient and more guaranteed than now with the help of retinal scan or facial recognition using Artificial intelligence and eliminate even the need of using a fingerprint.

## REFERENCES

- 1] Fingerprint Sensor based attendance system using AtMega328 and ESP8266, Upasana Ghosh, Nikita Jogi, Milan Bansod, Payal Madangar, International Journal of Research in Science and Engineering, 2017
- 2] A.K. Jain, P.Flynn, Handbook of Biometrics, Springer, NY, 2007.

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