Project Development phase

Project development _Delivery Of Sprint 2

Date	22 November 2022
Team ID	PNT2022TMID14548
Project Name	IOT based gadget Child Safety monitoring and notification
Maximum Marks	4 Marks

INTRODUCTION

The challenge of discovering a drowning individual for experienced lifeguards remains daunting.

Underage and amateur swimmers are affected by the near-drowning incidents [1]. Victims are confused, gasp for breath and try to avoid passage of

water through their nostrils or mouth, which is far the most devastating form of death. Lakes, rivers, beaches, and man-made water bodies are common areas where drowning occurs. Domestic cases of the drowning of young infants are mostly recorded during recreational activities such as swimming and diving into the deep.

Investigations

confirmed that life-vest is the safest option to avert drowning; even if a swimmer floats on the cold-water surface, the probability of him dying of hypothermia remains imminent [2].

World Health Organization (WHO) asserts that people under 25 years account for the average of 372,000 young people who die annually from drowning

[3], which becomes one of the leading causes of death among this age group. Also, the drowning incidents among children under age 15 accounts for 135,585 deaths globally. In the African continent, drowning is rated twenty times higher than

1. other continents in the globe. In 2019, a drowning incident, which

led to the Death of a graduate of the Federal University of Technology, Owerri, encouraged the invention of an IoT-based safety device to be worn by individuals before gaining access to the water. The device, in turn, alerts the lifeguards or passersby immediately a swimmer encounters danger.

1.2 Problem Statement

There is a need to deploy an IoT - based device to monitor, discover, track and locate anyone in danger of drowning in a water body and alert lifeguards to save them. The effective application of the IoT–

Fig. 1: Node MCU ESP 8266 (Node mcu esp 8266 Uno Rev3).

The connection point details and the terminals of the ESP8266 Wi-Fi module are described in Figure2.

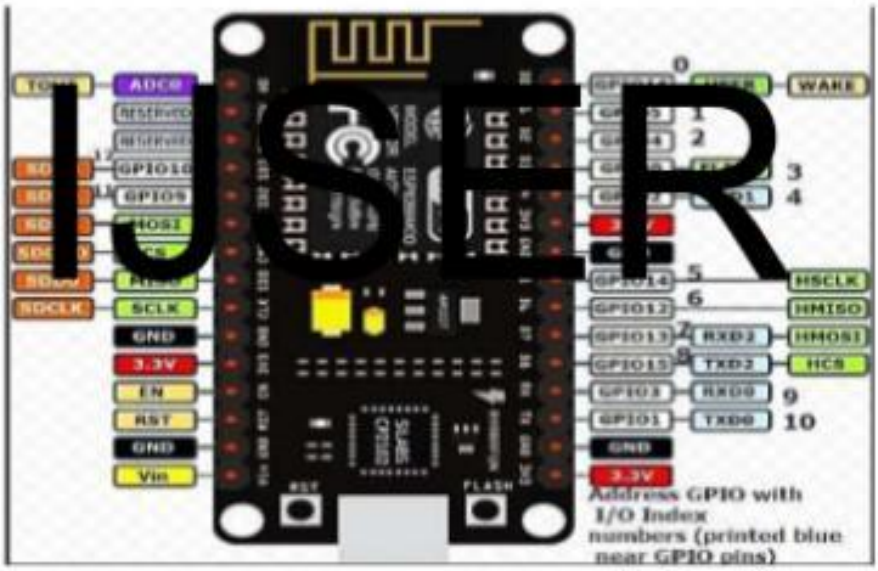

Fig. 2: ESP8266 Wi-Fi module.

where f, is the pulse frequency.

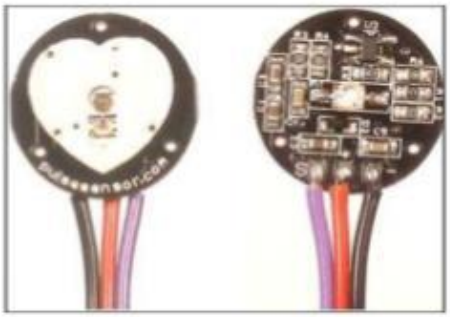

Fig. 3: Sensor Module for Heart-beat

An important kit, which aids the efficient performance of the sensor module for heart-rate measurement is shown in the figure 4.

1.3 Objectives

Its primary objective is to develop an IoT-based anti-drowning device. The specific objectives are to:

i. Identify existing system weaknesses necessitating the proposed system.

ii. Design the device input-output modules using IoT Technology.

iii. Code, construct and integrate the software and the hardware using Arduino.

iv. Validate the proposed system development through testing.