**Baby monitoring:**

**👶 IoT Baby Monitoring System using ESP32 + Blynk + DHT22 + MPU6050 + Servo**

**✅ What This System Does:**

* Monitors **temperature** and **humidity**
* Detects **baby movement**
* Takes **baby cry input** via Serial
* Swings the **cradle** using a **servo** (on user input from Blynk)
* Sends baby status ("Sleeping", "Crying", or "Baby Moving") to Blynk

**🔧 STEP 1: Required Components**

| **Component** | **Quantity** |
| --- | --- |
| ESP32 | 1 |
| DHT22 Sensor | 1 |
| MPU6050 Module | 1 |
| Servo Motor | 1 |
| Jumper Wires | As needed |
| Breadboard | Optional |

**🧠 STEP 2: Circuit Connections**

| **Module** | **Pin on ESP32** |
| --- | --- |
| DHT22 VCC | 3.3V |
| DHT22 GND | GND |
| DHT22 DATA | GPIO 21 |
| MPU6050 VCC | 3.3V |
| MPU6050 GND | GND |
| MPU6050 SDA | GPIO 21 |
| MPU6050 SCL | GPIO 22 |
| Servo Signal | GPIO 15 |
| Servo VCC | External 5V (recommended) |
| Servo GND | GND |

**📲 STEP 3: Blynk Cloud Setup**

1. **Go to** <https://blynk.cloud>
2. Login and click **“Templates” → “+ New Template”**
   * Name: baby care
   * Hardware: ESP32
   * Connection: WiFi
3. Click **“Datastreams”** and add:

| **Datastream Name** | **Type** | **Virtual Pin** |
| --- | --- | --- |
| Temperature | Double | V1 |
| Humidity | Double | V0 |
| Baby Status | String | V2 |
| Cradle Switch | Integer | V6 |

1. Copy your:
   * BLYNK\_TEMPLATE\_ID
   * BLYNK\_TEMPLATE\_NAME
   * BLYNK\_AUTH\_TOKEN

**📱 STEP 4: Blynk App Setup (Mobile)**

1. Download the **Blynk IoT App** from Play Store or App Store.
2. Log in → Your device will auto-appear.
3. Click device → tap **Edit icon**.
4. Add 3 widgets:
   * **Label (V0)** → Humidity
   * **Label (V1)** → Temperature
   * **Label (V2)** → Baby Status
   * **Switch (V6)** → Cradle Swing ON/OFF

**💻 STEP 5: Arduino IDE Setup**

**Install Required Libraries:**

* Blynk (from Library Manager)
* DHT sensor library
* Adafruit Unified Sensor
* Wire
* MPU6050 (by Electronic Cats)
* ESP32Servo

**Select Board:**

* Tools → Board: ESP32 Dev Module
* Tools → Port: Your COM port

**💡 STEP 6: Upload the Code**

Update these lines in your code:

cpp

CopyEdit

#define BLYNK\_TEMPLATE\_ID "TMPL3Y2oN4mEB"

#define BLYNK\_TEMPLATE\_NAME "baby care"

#define BLYNK\_AUTH\_TOKEN "LY36RWAyM2D9gFjvqb9I64jjHe46t-Cl"

char ssid[] = "Wokwi-GUEST"; // or your WiFi SSID

char pass[] = ""; // or your WiFi password

Upload the code to ESP32. Open the Serial Monitor to test cry/sleep input:

* Type cry → Baby status: "Crying"
* Type sleep → Baby status: "Sleeping"

**🔍 STEP 7: Monitor on Blynk App**

You will now see live:

* 🌡️ Temperature on **V1**
* 💧 Humidity on **V0**
* 👶 Baby Status on **V2**
* 🌀 Cradle Swing controlled by **Switch on V6**

