Hypotension Measurement

Presented to Eng.Peter

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Hypotension:

Hypotension is a decrease in systemic blood pressure below accepted low values. While there is not an accepted standard hypotensive value, pressures less than 90/60 are recognized as hypotensive. It only becomes a concern once pumping pressure is not sufficient to perfuse key organs with oxygenated blood.

Symptoms:

- Fainting.
- Unsteadiness.
- Blurred vision.
- **Heartbeats become more noticeable.**
- Confusion.
- Tiredness.
- **Cold, clammy skin.**
- Decrease in skin coloration (pallor).
- Rapid, shallow breathing.

Procedure:

Measuring body temperature in addition to the heart rate is a good monitoring technique to know whether hypotension patients face any doublets, by comparing the measured parameters with the thresholds we can decide whether an intervention is required for drug delivery or not. This can be automated using the syringe pump and notifying the healthcare deliverer that doublets happened through sent **message** using the **mobile application** in addition to audible and visual alarms using the **buzzer** and the **led**.

Components:

Arduino Uno	NTC Waterproof Thermistor	Heart Rate sensor
Buzzer	Green Led	220k Resistor(thermistor)
Bluetooth Module	Stepper Motor with driver board	10k Resistor (buzzer)

Thresholds:

Temperature: Below 21°c.
Heart rate: Above 250 (average of normal persons' readings).

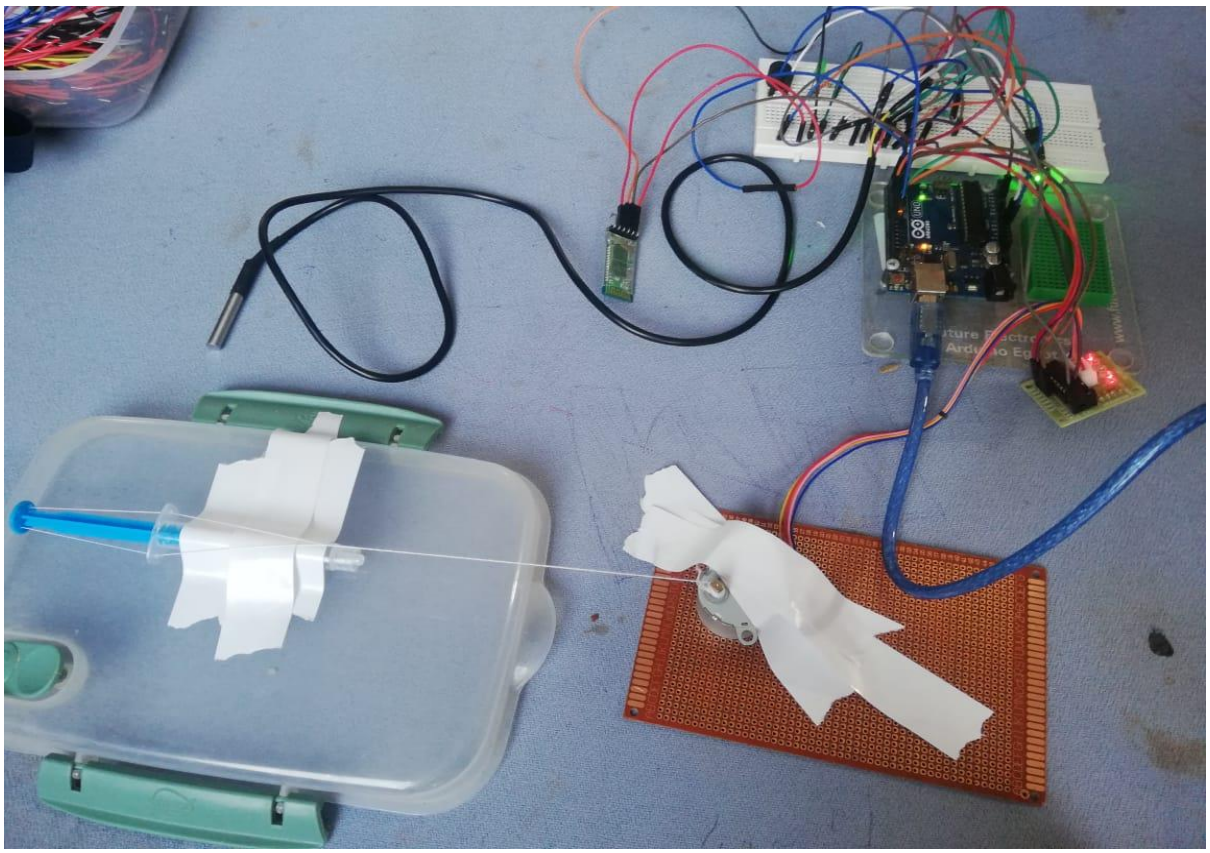
Note:

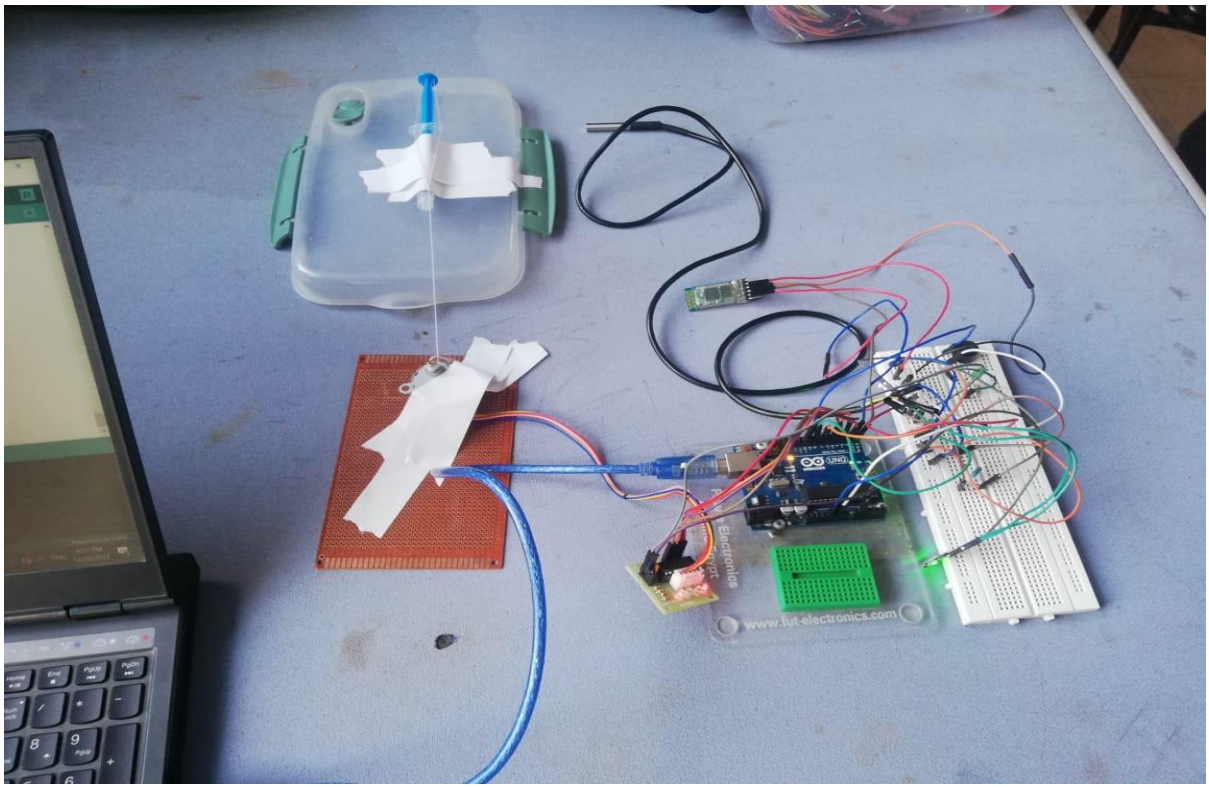
The heart rate sensor readings aren't realistic as it is used for activities purposes only as indicated by the manufacturer, moreover this threshold temperature is only hypothetical and not used in real life applications due to inaccuracy of the sensor.

Limitations:

- We recommend using **max30100** (pulse oximeter), for measuring the blood oxygen saturation accompanied by the heart rate.

Circuit Screenshots:

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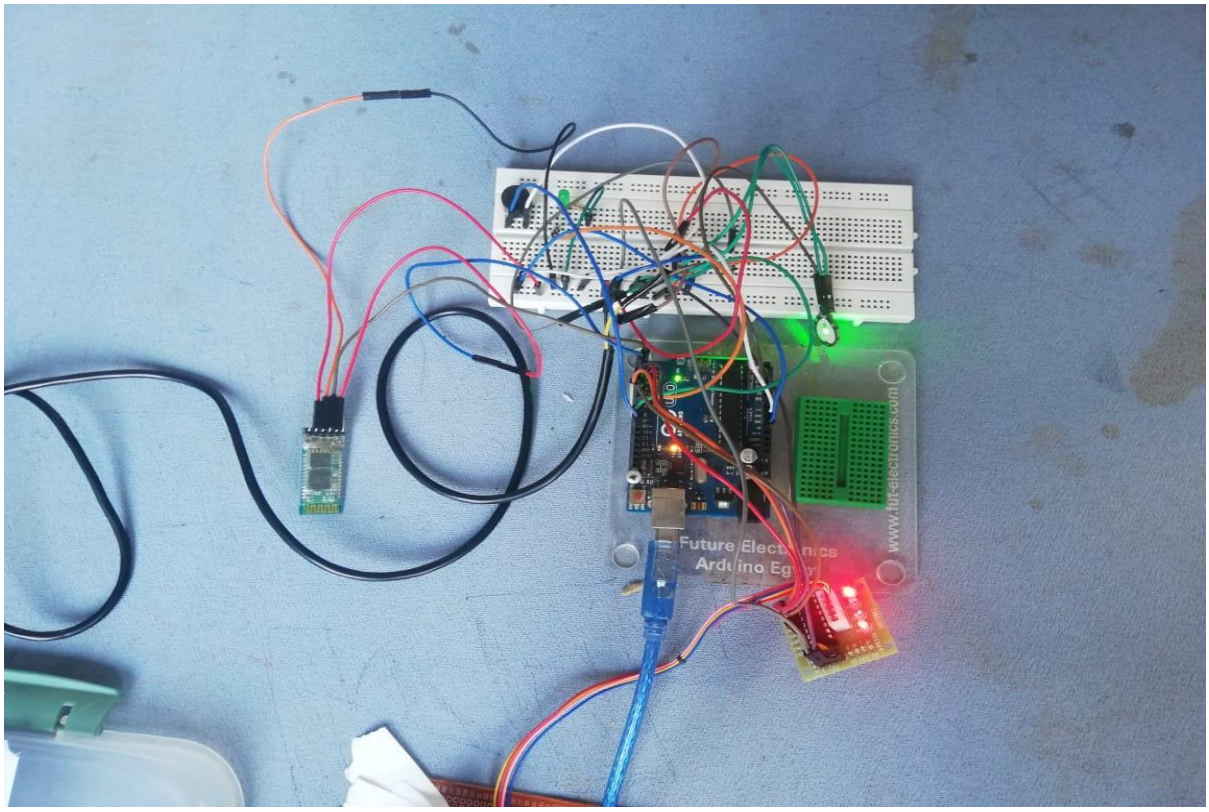
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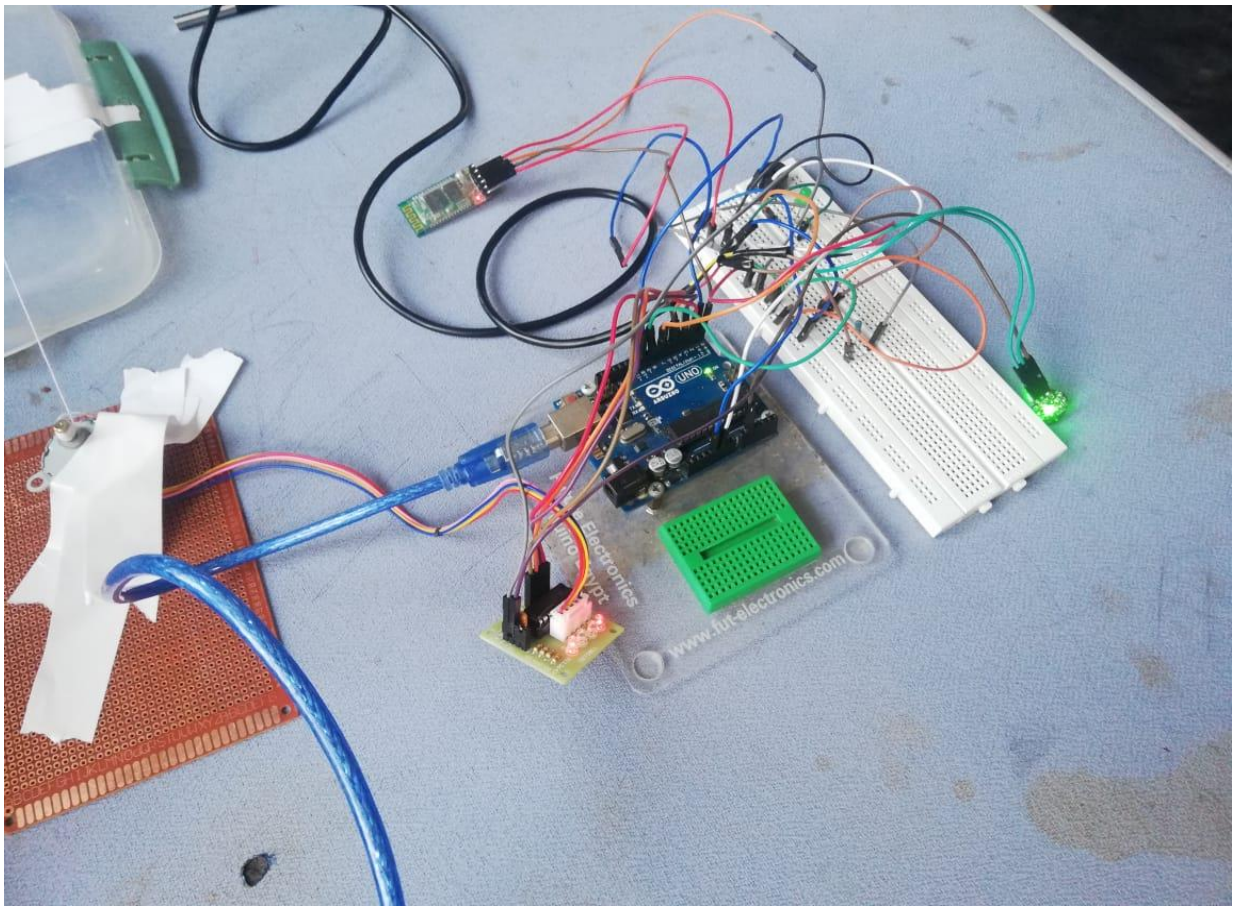
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