Project idea

THE SOCIAL DISTANCING REMINDER SYSTEM

https://maker.pro/arduino/projects/social-distancing-reminder-system
https://maker.pro/arduino/projects/social-distancing-detector

THINGS TO KNOW:

Ultrasonic principle

Ultrasonic sensors emit short, high-frequency sound pulses at regular intervals. These propagate in the air at the velocity of sound. If they strike an object, then they are reflected back as echo signals to the sensor, which itself computes the distance to the target based on the time-span between emitting the signal and receiving the echo.

WHY CAN'T A PIR SENSOR CAN WORK FOR THIS IDEA?
PIR SENSOR IS USED TO DETECT THE INFRARED LIGHT OR HEAT COMING OUT OF THE OBJECT. The detector itself does not emit any energy but PASSIVELY receives it, detects infrared radiation from the environment.

ISSUES FACING:

1. ***Unable to distinguish between human and cylindrical type objects.- grid eye sensors can be used***
   (GRID EYE SENSORS ARE HIGHLY EXPENSIVE IN COMPARISON OF ULTRASONIC SENSOR)*.*
   (*As we know the principle, this is not just a human and cylindrical object. SO WE HAVE TO RELY ON THE TESTING THAT AT THAT EXTENT IT WORKS. Even other companies made it.*)
2. ***Cost of the product(pata karna hai)***
3. ***Why would people use it as they already aware to maintain social distancing-solution lies in subconsciousness when people are too much involved and forget about social distancing***
   (not an issue -- as we all are human and it may happen sometime that we may be not much focussed, it is more like an extra safety precaution or measure.)

4. ***APPEARANCE OF THE PROJECT.* (the size of the belt may vary from person to person)**

PRECAUTIONS REQUIRED:

1. ***The MAXIMUM range of the sensor depending on what PARTICULAR type of sensor we are using.***

Equipments used:

1. ***2 Untrasonic sensor***
2. ***1 Universal pcb(optional)***
3. ***Jumper wires***
4. ***1 Arduino nano/uno***
5. ***buzzer***

Cost of every equipment:

1. Ultrasonic Distance Sensor Module - HC-SR04: rs.115.00*2 -> FREE DELIVERY(https://www.electronicscomp.com/ultrasonic-distance-sensor-module-hc-sr04-india?gclid=CjwKCAjwq832BRA5EiwACvCWsYaaF-G4K7osqJ8AlqiiWLF_nScF9oX99P6K341gKelurckyXrZwWxoCqc8QAvD_BwE)

2. **1 Universal pcb(optional)**

3. **Jumper wires - rs. 50-60(40pc.)**

4. Uno R3 CH340G ATmega328p Development Board Compatible with Arduino: rs. 249.00 -> FREE DELIVERY(https://robu.in/product/arduino-uno-r3-ch340g-atmega328p-devlopment-board/?gclid=CjwKCAjwq832BRA5EiwACvCWsaEfRskIDDiGrF8Hkqd8b4BEf5bZksDrx_KvQ7yc3YGkMTyEO1QfoxoC5xsQAvD_BwE)

5. **Buzzer - rs. 20**

_How to distinguish humans?

1)we can use this sensor which is specifically used to detect humans.This device can detect human presence not only in motion but also not in motion because it converts an IR of human body to electrical signal directly.main problem is cost which is around 10$ https://www.digikey.in/en/product-highlight/a/akm-semi/ak9750-human-detection-ir-sensor-module

2)The most common way is to use a Passive Infra-red Sensor, which is finely tuned to detect human-like body temperatures. This is one of the most inexpensive ways https://ieeexplore.ieee.org/document/8342790 Cost per sensor is around 100-200rs

3)we can use MEMS sensor which is sort of capacitive thermal sensor for detection.It is used in automated fans.
https://iopscience.iop.org/article/10.1088/1757-899X/184/1/012042

4)The XeThru sensor is perfect for what you describe. In fact it has already been done at the Hanyang University, Seoul, Korea using the XeThru UWB radar sensor.More details can be found here: https://xethru.com ,video of working model here:https://www.youtube.com/watch?time_continue=2&v=AF17LVi8WF0&feature=emb_title

5)Found this thread which could be helpful:https://www.element14.com/community/thread/35118/l/sensor-to-detect-human-presence?displayFullThread=true

6)This ready made sensor can be used but it becomes costly,but the coding can still be used:https://wiki.seeedstudio.com/Grove-Human_Presence_Sensor-AK9753/

7) isko bhi padh lo - SMART PROXIMITY SENSOR DEVICE
https://www.engusa.com/en/product/smart-proximity

https://www.engusa.com/en/posts/smart-proximity-in-the-workplace

FUTURE ASPECTS:

1. **It can be used in the factories where there is a need for social distancing.**

2. ***Can be normally used in sheep husbandry/and other places where airborne viruses are prevalent***

3. ***Future pandemics***

4. ***Used in prisons for safety purposes***

5. ***"The restoration of the economy relies on [people] returning to work and [companies] returning to full operational capacity. But, to do so, manufacturers are being required to ensure the safety and well-being of their workforce, not only to prevent the spread of this pandemic, but to protect their people moving forward, as the medical community warns of a second and third wave of contagion in the coming months.***

https://www.electronicwings.com/arduino/esp8266-wifi-module-interfacing-with-arduino-uno