```cpp
#include "ir_sensor.hpp"
#include "main.hpp"

void IR_Sensor::start() {
    /// Start the IR Sensor loop
    while (true) {
        mState = IR_BUSY;
        if (IRon) continue;

        /// THis first section just loops endlesly until the IRon sensor
        /// gives us a 'no one is here signal'

        bool startOver = false;
        auto end = clk::now() + 2s;
        while (clk::now() < end) {
            if (IRon) {
                startOver = true;
                break;
            }

            /// This here will loop for 2 seconds or until someone walks through the door
            /// if we get a person through the door in that 2sec then we want to mark startOver
            /// to true and start this process over again
        }

        if (startOver) continue; // This repeats the loop if a person
        // walks through if not then IR should be done and we send

        /// The return of this function will be the signal that tells
        // the Door FSM that IR Sesor is dont
        mState = IR_OFF;
        return; /// We dont need to start over, the IR sensor is done
    }
}
```