RISC-V Product Development Hackathon:

Last date for Submission: **22 September 2023 (11:55 PM IST)**

Stage 1-Product Idea Submission Form

1. **Product Title**

   Seceft Defender (Kavach)

   Team Name- Secure Vision

2. **What does your product do?**

   Some of the Primary Action and Features of the Product are given below:-

   - Security
   - Monitoring
   - Alarm
   - Detect motion
   - Track
   - Respond
   - Display Message

3. **What all interfaces of the board will used in the product ?**

   The interfaces which are going to be used in this products are :-

   GPIO pins are used to connect the PIR,LDR and ultrasonic sensors and buzzer also. .I2C interface is also used according to the requirement , as it is used to connect the 16x2 LCD display.

4. **Does the product utilise sensors?**

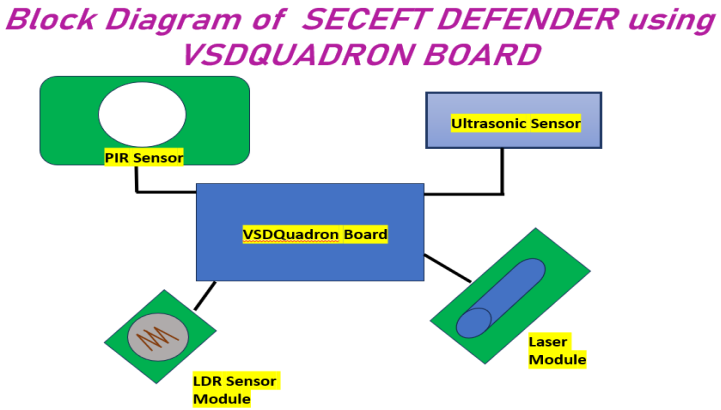
   - *Yes*

5. **If "Yes" for above question, then list your sensors here**

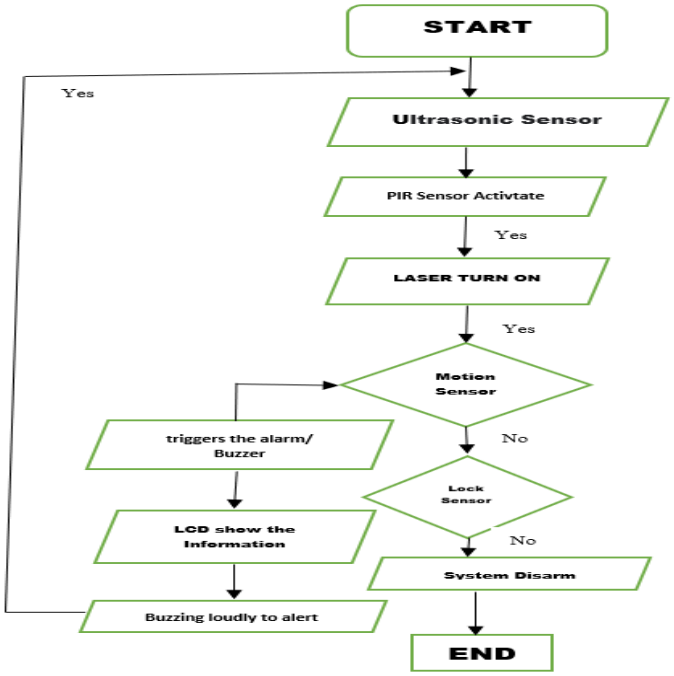
   The sensors which are used in our project are :-
   PIR Sensor
   LDR Sensor Module
   Ultrasonic Sensor

6. **Draw a Block diagram of the product.**

   A block diagram is given below showing that how the sensors and some other components are connected VSDQuadron board.



7. **Upload the Algorithm flowchart of the product.**

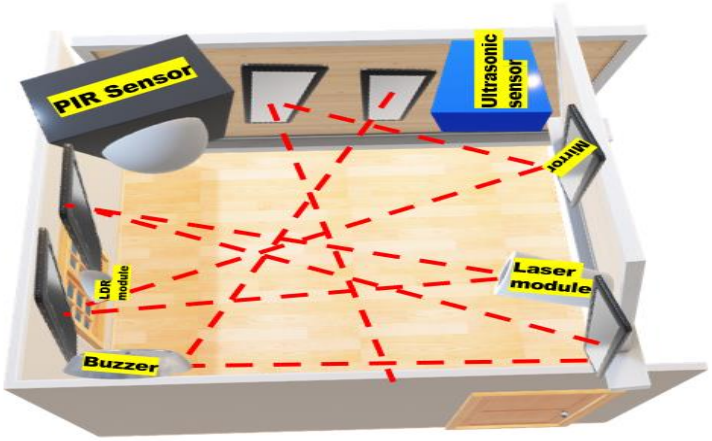


8. **Explain the algorithm of the product in bullet points.**

- *When any person enters into the room .*
- *He/she crosses the measured distance .*
- *Ultrasonic sensor detects and it activates the PIR Sensor.*
- *PIR sensor detects motion, and alarm triggers.*
- *Then, the Laser Module become activates.*
- *If someone crosses the laser beam, alarm triggers*
- *LDR also monitors ambient light.*
- *If someone tries to block the sensor, Alarm Triggers.*
- *When any sensors are triggered, buzzer starts buzzing to alert nearby persons.*
- *LCD display shows, information about intruder and throws message.*

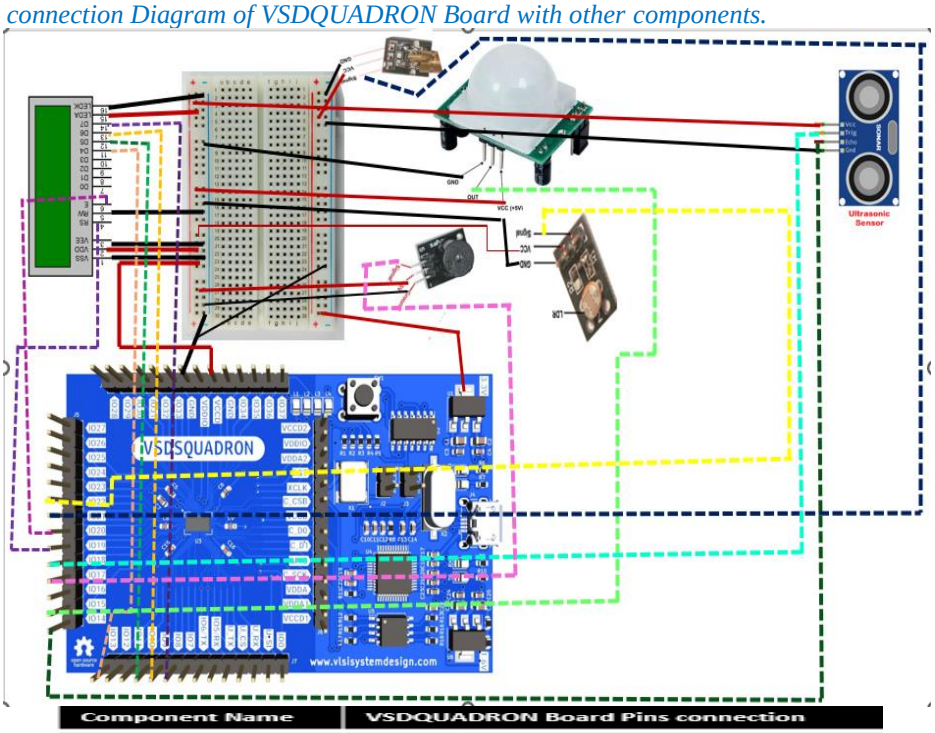
9. **Draw a Rough sketch of the final product.**

An imaginable image of how your product will look from the outside.



10. Upload the rough sketch of the Internal product (With all connection of components with the board and the product.).

Internal connection Diagram of VSDQUADRON Board with other components.



Component Name	VSDQUADRON Board Pins connection
PIR Sensor - VCC-5v - Out- - GND	- Breadboard - IO15 - Breadboard
LASER Module - Signal - VCC-3.3v - GND	- IO21 - Breadboard - Breadboard
ULTRASONIC Sensor - VCC - TRIG - ECHO - GND	- Breadboard - IO18 - IO14 - Breadboard
LDR Sensor Module - GND - VCC - Signal	- Breadboard - Breadboard - IO22
Buzzer Module - Signal - VCC - Gnd	- IO17 - Breadboard - Breadboard
LCD Display - VSS - VCC - VEE - RS - Rw - E - D4 - D5 - D6 - D7 - LEDA and LEDK	- Breadboard - Breadboard - Breadboard - IO19 - Breadboard - IO20 - IO13 - IO10 - IO9 - IO8 - Both pins connected to Breadboard

11. BoM list (excluding the board) with cost.

List of all components required.

Component name	Quantity Required	Unit price	Total Price (Unit price*Quantity)
Ultrasonic Sensor	**1**	**189**	**189**
PIR Sensor	**1**	**125**	**125**
LDR Sensor Module	**1**	**185**	**185**
Laser Module	**1**	**122**	**122**

Ribbon cable	**10 metre**	**117**	**117**
Switch	**1**	**10**	**10**
Breadboard(small)[400 points]	**1**	**139**	**139**
Jumper wires (male to male, male to female ,female to male)	**10 pc bulk**	**84 for all type with 10 pc**	**84**
Buzzer Module	**1**	**163**	**163**
10k resistors	**4**	**49**	**196**
LCD display (16 x 2)	**1**	**285**	**285**
9v battery clip	**1**	**89**	**89**
9v battery	**1**	**209**	**209**
LED (Green and Red)	**3 each**	**31**	**93**
Some small pieces of mirror for reflecting the laser light[Round glass mirror or diamond shape or square mirror]	**5 pieces**	**70**	**350**
Micro USB cable	**1**	**100**	**100**

12. Team details

Name	**University/Organisation**	**Age**	**Gender**	**Current Semester**	**Current Address**	**Do you need accommodation if the Demo is to done in Bangalore**	**Role in Product Development**
Vanshika Tanwar	Dronacharya group of institutions	22	Female	8th	Netaji Subhash Marg, Near Tata Motors, Darya Ganj, New Delhi - 110002	Yes, I need as I am living in Delhi.	Handling Hardware Connections with VSDQuadron Board.
E Balakrishna	Dronacharya group of institutions	22	Male	8th	Ali Village New Delhi	Yes, I need as I am living in Delhi.	Handling Software part Arduino IDE coding of the product.