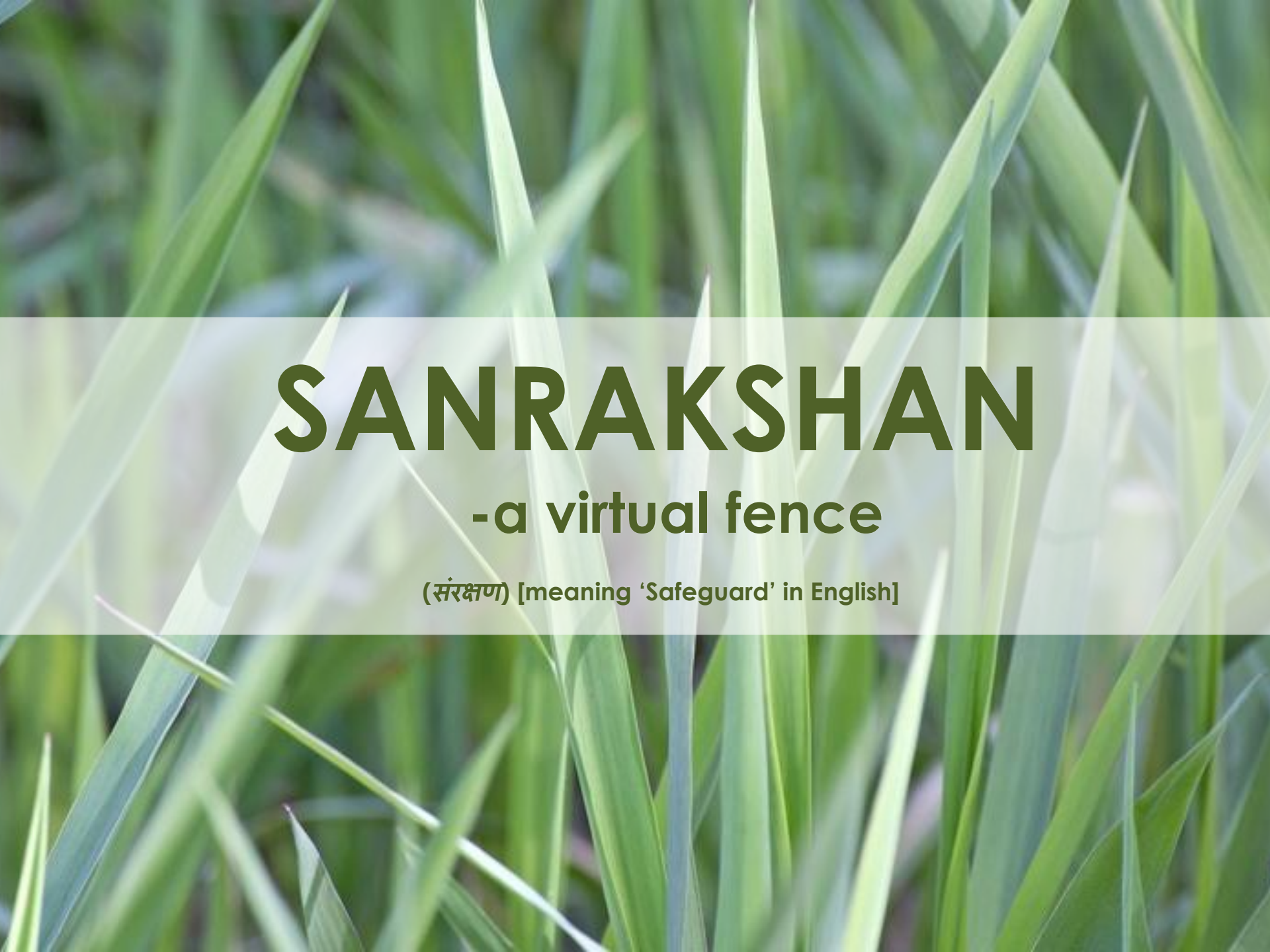


SANRAKSHAN

-a virtual fence

(*संरक्षण*) [meaning 'Safeguard' in English]

ABOUT THE INNOVATION

CUSTOMER SEGMENT

Farmers of Uttarakhand are the customer segment who are facing the problem of crop destruction caused by specific animals like wild boar, deer, goat, buffalo and neelgayi.

Another problem faced by farmers are that existing solutions have limitations like:

1) Staying whole day in the field to **manually scare away** animals has exposed farmers to problems of **sleep deprivation** and **attacks** by animals.
2) Animal repellent chemicals have **destroyed growth** of crops.
3) Putting electrical fences has caused **deaths of animals**.
4) Devices based on AIR-PIR sensors and deep learning are **not cost-efficient** and give lots of **false alarms**.

SOLUTION

1) '**SANRAKSHAN' (संरक्षण)** is **solution t**o problem faced by our customer segment.
2) This innovation is an **animal deterrent device** which firstly by use of **"laser-LDR detection technology" differentiates** between **humans and specific animals.**
3) Then after getting **confirmation** about entry of **specific animal**, **light** and **sound** system get **activate**.
4) Specific animals perceive these systems as **life threat element** and thus they **scare-off** the fields.

What all animals are referred here as specific animals?
Wild boar, deer, goat, buffalo and neelgayi.

What is "Laser-LDR detection technology"?
It is an interaction between **laser light** and **LDR sensor**(light dependent resistor). As laser light falls on surface of LDR, it outputs integer value which helps to **calculate** parameters of **height** and **width**, which in turn helps to **differentiate** between **entries** of **specific animal** and **human** because:-
a) width of specific animal > width of human
b) height of adult human > height of specific animal.

VALUE PROPOSITIONS

1) **Intelligent differentiation** between humans and specific animals based on laser-LDR technology **prevents power wastage** during false alarms.

2) Automates the process of scaring away specific animals, thus **physical presence** of farmers to safeguard their fields is **not required.**

3) This provide time to farmers to take **rest** and **lower** their chances of being **attacked** by specific animals.

4) **Neither** any **specific animal** gets **injured nor** any **harm** is caused to growth of **plants** by use of this by use of this approach.

5) GPS, camera or AIR modules are not used because they are **costly** and give **false alarms** (as can't differentiate between animals and humans).

BUSINESS MODEL

KEY ACTIVITIES

1) Importing and manufacturing of required electrical components.
2) Product assembling, testing and packaging.
3) Product distribution at points of sales.
4) Development of the e-commerce website of the product.
5) Technical service provider physically as well as on toll-free number.
6) Conducting promotional events in the form of gatherings, demos at stalls, representative members and on the product website.

CUSTOMER RELATIONSHIPS

1) Quality assurance at economical price will be at top priority of company's service.
2) Company will set up local stalls and gatherings at market areas to advertise the product directly to the customers.
2) Company will appoint local youth as representatives to encourage their neighbouring farmers to use the product.
3) Company will provide one free maintenance service each month.
4) After every six months, the company will conduct a feedback survey.
5) 24*7 toll-free number for small technical issues like a wiring issues.

POTENTIAL MARKET SIZE

Out of total cultivable land, approx 90% land is been hold by marginal farmers, of which approx 50% land is been hold by farmers who need solutions like SANRAKSHAN, i.e. approx 3.34 lakh hectare. Let's suppose roughly 25 sq. metres of land is protected by 1 SANRAKSHAN unit(comprising of two pillars). So roughly 1,336 lakh of SANRAKSHAN units would be needed. Now roughly 1 SANRAKSHAN unit costs INR 2000/-, then total potential market size in span of 8 years can be expanded up to worth of INR 2.6 hundred crore.

REVENUE STREAMS

1) From one-time cost payment or instalments based cost payment.
2) From customers buying spare parts of the device.
3) From maintenance service needed after every 7-8 months

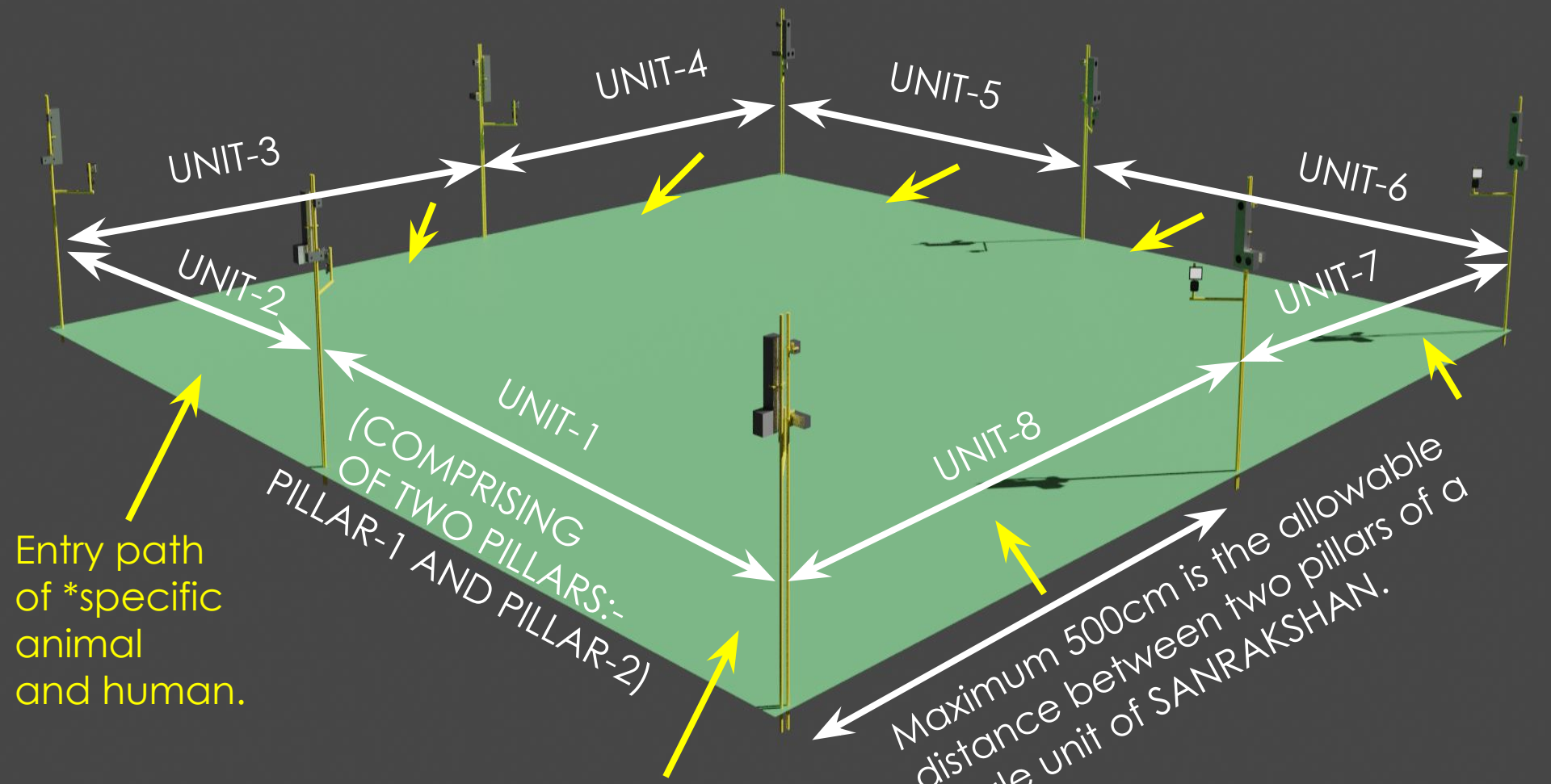
CHANNELS

The product will delivered by personal channels like from e-commerce website, stores and door-to-door sales. This centralised distribution will keep a check on fake products as well as eliminating the need of franchise-holders.

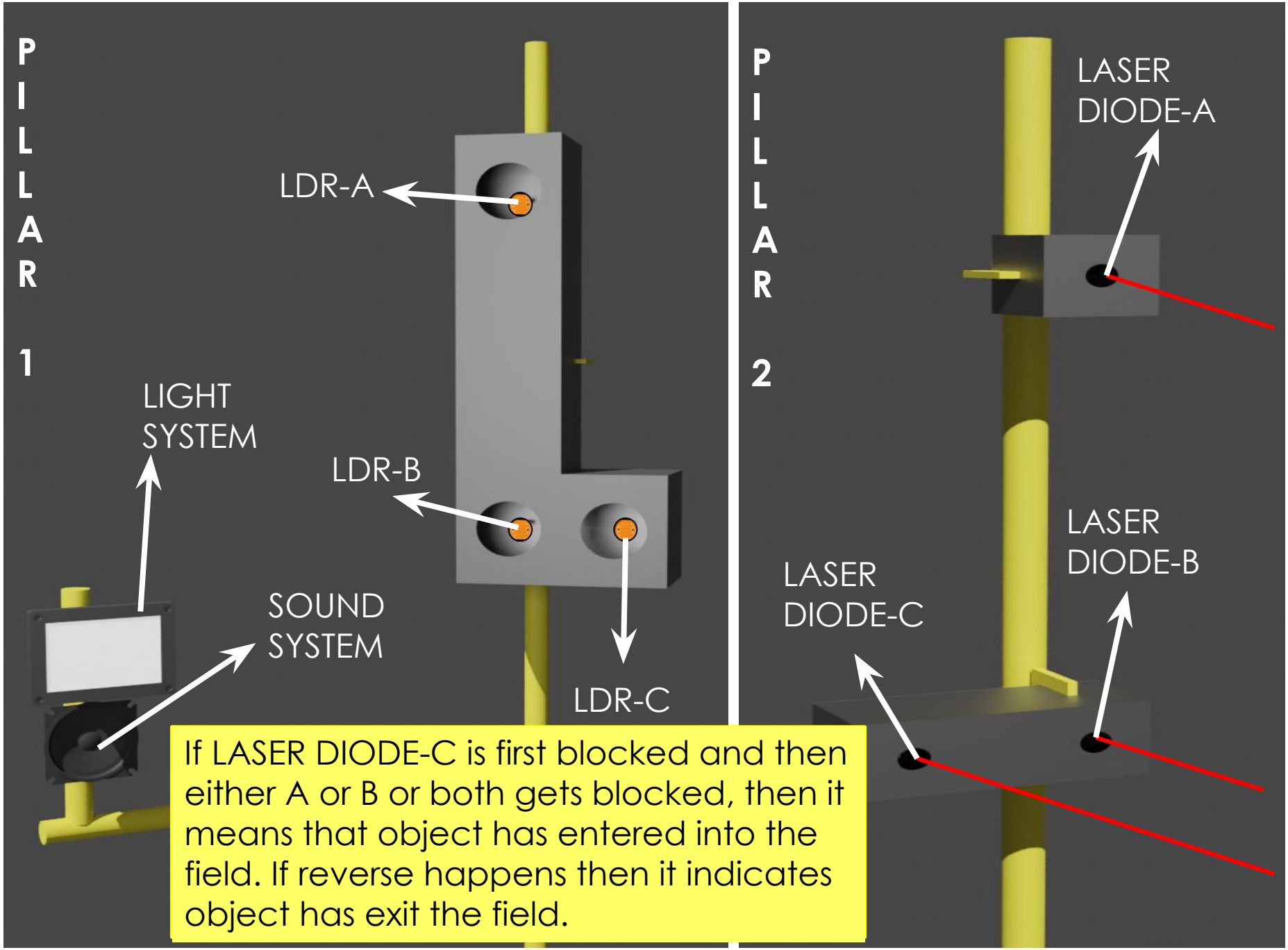
KEY RESOURCES

1) Unskilled labour
2) Raw materials
3) Distribution service
4) Advertising
5) Technical experts for product designing, circuit designing and video editing.

STRUCTURE OF SANRAKSHAN



* Refer to slide-2


PILLAR 1
LDR-A
LDR-B
LDR-C
LIGHT SYSTEM
SOUND SYSTEM
PILLAR 2
LASER DIODE-A
LASER DIODE-B
LASER DIODE-C
If LASER DIODE-C is first blocked and then either A or B or both gets blocked, then it means that object has entered into the field. If reverse happens then it indicates object has exit the field.

WORKING OF SANRAKSHAN

1) **Body width** is calculated by observing **total time** for which either **laser lights A or B or both** remains **blocked** to **fall on** surface of **LDR** sensor by body of specific animal or human entering the field.
Example:- More the body width, thus for more time path of laser light (A or B or both) will remain blocked to fall on surface of LDR, thus indicating entry of specific animal in the field.

2) **Body height** is calculated by observing that **out** of **two laser lights- A and B**, **which** one is **more** frequently **blocked** to fall on surface of LDR.
Example:- During entry of an adult human both laser lights A and B are blocked with approx. equal frequency. But during entry of an animal laser light-A is always less frequently blocked than laser light-B, because height of specific animal is generally smaller than that of an adult human.
For exception cases of specific animal being taller or equal to an human adult, the fact that will help to identify entry of specific animal is that their skull is smaller than their lower body, thus frequency of blocking of laser light-A will be lesser than frequency of laser light-B.

THANK YOU