



## SakRobotix Research Centre (SRC) Proposal

From,  
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**(SUB – To create Robotics scientist by establishing state of art Robotics Lab and offering quality robotics education at your school)**

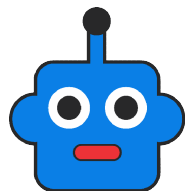
SakRobotix Lab is one of the most exciting & fastest growing robotics product company in India based out of **IIT Bhubaneswar Startup Center**; we are into robotics Research & Education with 45 different DIY robotic learning kits, products and many more.

To make Our Country India the next robotics capital of the world, we are establishing, **SAKROBOTIX RESEARCH CENTER (SRC)** – A robotics lab to offer **STEM & Robotics** learning at your School Campus for 1<sup>st</sup> to 10<sup>th</sup> class students.

We will invest and establish the lab in your school, deploy competitive and dedicated robotics trainers to offer quality training with 100% hands on experience.

Such physical explorations not only make the concepts more tangible but also appeal to student's diverse learning style.

SakRobotix Lab Pvt Ltd believes that you will grab this opportunity and will add fuels in our journey to make India the next robotics capital.



# **SakRobotix Lab**

STARTUP CENTRE, IIT BHUBANESWAR

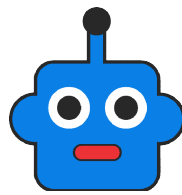
## **Our Curriculum: -**

### **Standard – 1:**

<b>contents</b>	<b>project name</b>
Activities , 100% hands on session , Science,Technology , Engineering & Mathematics	Mini Ferrari Car
	Smoke Ring
	Egg in Bottle
	Synthetic Jelly
	Pencil Bow
	Dancing Joker
	Build a Fizz Inflator
	Invisible Ink
	Gravity Device
	Centrifugal Sprinkler
	Colour Wheel
	Magic Bank

### **Standard – 2:**

<b>contents</b>	<b>project name</b>
Activities , 100% hands on session , Science, Technology , Engineering & Mathematics	Balloon Rocket
	Multi Boil
	Pop Gun
	Roaring Bottle
	Straw Turbine
	Chicken Sound from cup
	Color Mixer
	Dishing out the Color
	Lift an Ice cube
	Matchstick McCann
	Pin Wheel
	Water Turbine



# **SakRobotix Lab**

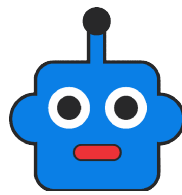
STARTUP CENTRE, IIT BHUBANESWAR

## Standard – 3:

contents	project name
Activities , 100% hands on session , Science,Technology , Engineering & Mathematics	Spinning brush bot
	Robot car
	Propeller car
	Ant robot
	Wobblebot
	Homemade wigglesbot
	Walking robot
	Ice skating robot
	Led pattern (two led)
	Letter design using led's
	Rc car
	Magic candle

## Standard – 4:

contents	project name
Activities , 100% hands on session , Science,Technology , Engineering & Mathematics	Walking robot
	Robot plane
	Hopping robot
	Six legged hexapod
	Jumping hen
	Rikshaw men
	Push car
	Diy robotic walking robot
	Cute walle robot
	Wind turbine (from cardboard)
	Mini water pump
	Homemade air conditioner

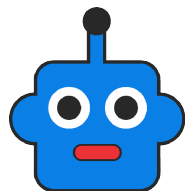


## Standard – 5:

contents	project name
Introduction to robots   definition of robot   laws of robots   4-D condition   current trend   motor selection   material selection Archimedes Principle   bouncy   density of water   water as a medium   propeller Problem solving solution   Identifying the problem   Developing sustainable Application   components of the robot   Design	WaterBoat – Design & Testing
	Flap waterboat
	OCU Design & Control
	Design of Basic Underwater robot
	Assembly & Testing of Underwater Robot
	Underwater Dark Explorer
	Garbage Collector Robotz
	Obstacle Avoidance Overwater Robot
	Wireless WaterBoat Control
	Underwater Hurdle
	Underwater Pick & Drop Robot
	Amphibious Robot

## Standard – 6:

contents	Project Name
Introduction to robots   definition of robot   laws of robots   current trend   need of robots   motor selection   material selection   Light sensor module   concept creation   concept design   mechanism development   parts development   assembly of   try cycle modeling   mathematics of triangle   magnet   electric magnetism   walking robot mechanism   seed rowing mechanism   propeller   Motor working principle   obstacle   floor moping mechanism	Manual Robot
	Cake Cutting Robot
	Soccer Robot
	Floor Mopping
	Grass Cutting Robot
	EM Garbage Collection Robot
	Fire Fighting Robot
	Night Robot
	Remote Control Robot
	Intelligent Manual Robot
	Wireless Controlled Robot
	Hurdle Robot

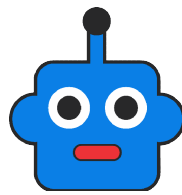


## Standard – 7:

Content	Project Name
Mission completion robot   converting electrical energy to mechanical moments   Types of gears & its application   remotecontrol   friction   slope climbing robot   wheel selection   robots in sand   robots in unstructured arena   Gripper designing   gripper mechanism   robot playing soccer   TT ball pick and place robot   suction mechanism   Archimedes Principle   bouncy   robot war contest design innovations   Semi-autonomous robot	Operator Controlled Robot
	Slope Climbing Robot
	Self-balanced Robot
	Human Guard Robot
	Gripper Design & Assembly
	Robotic Arm
	Pick & Place Robot
	Manipulated Vacuum Cleaner
	Police robot
	Biodegradable garbage robot
	Snake Robot
	Wireless Controlled Pick & Place

## Standard – 8:

Contents	Project Name
Introduction to Robotics   What is a robot   Types of robots   Applications of robotics   Current and future market scenarios   4-D condition   Control & Sensing   Wheel diameter   Wheel circumference   Gear mechanism   Math's behind RPM   Physics behind Motors   Engineering behind robots   application of technology in multi facet way   spraying pesticides Problem solving solution   Identifying the problem   components of the robot   Design   Assembly of the robot step by step approach   integration & interfacing all parts   testing   Basic Electronics components   application of electronics components.	Obstacle Avoidance Robot
	Black Line Follower Robot
	Wall Follower Robot
	Light Follower Robot
	Edge Follower Robot
	Fire Avoidance Robot
	Fire Fighting Robot
	Self-Balancing Robot
	Dual Sensor Line Follower Robot
	Remote controlled Line Follower Robot
	RF Controlled Robot
	Remote controlled Line Follower Robot

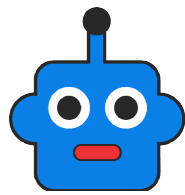


## Standard – 9:

Contents	Project Name
Programming the Robot   problem statement   Solution   Algorithm   Flowchart   Programming   coding   Arduino IDE   Arduino Uno board hardware   motor driving shield   Interfacing Sensors   interfacing motor   hardware configuration   program downloading   testing   sensor alignment   sensor calibration   Wireless communication   Rf communication   mobile android application based control   mechanical hardware assembly	Obstacle Avoidance Robot
	Single Sensor Line Follower
	Shadow Follower
	Edge follower robot
	Dual sensor Line Tracking
	Dual sensor obstacle avoidance
	DTMF Control Robot
	Checkpoint Robot
	Smart dustbin
	Colour detection robot
	Blind man Smart stick
	Chopping machine

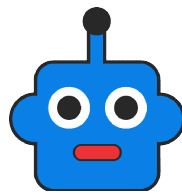
## Standard – 10:

Contents	Project Name
Advance Programming the Robot   problem statement   Solution   Algorithm   Flowchart   Programming   coding   Atmega 328 Microcontroller   Arduino hardware , motor driving shield   Interfacing Sensors   interfacing motor hardware configuration   Home automation program downloading   testing   sensor designing   sensor calibration   Wireless communication   advanced wireless communication   Bluetooth communication   Hardware assembly	Obstacle Avoidance Robot
	Path Planning Robot
	Bluetooth App control Robot
	Bluetooth Voice Control Robot
	Robotic Gripper Design/Control
	Robotic Arm Control(A to B)
	Bluetooth Robotic Pick & Place
	Intelligent Obstacle Avoidance
	Self-Balancing Robot
	Gesture Controlled Robot
	Humidity Controlled Robot
	Geometric Path Finder



## ROBOTICS LAB COMPONENTS

S No.	Robot /Component details	Quantity
1	SERA - Humanoid Robot	1
2	SHIR - Hybrid Robot	1
3	Robotics Arm	2
4	Robotics Teddy Bear	2
5	Robot DIY Kit 9.0	10
6	Robot DIY Kit 8.0	10
7	Robot DIY Kit 7.0	10
8	Robot DIY Kit 6.0	10
9	Robot Underwater DIY kit	10
10	Multi sensor kit (collection 37 different sensor)	1
11	Screw Driver Set	1
12	Touch Display Module	2
13	Audio Module	2
14	Wireless RF Module (RX & TX)	2
15	Stepper motor	4
16	BLDC motor	4
17	DC motor	4
18	Servo motor	4
19	DPDT Switch	12
20	Remote Box – 3 Switch	3
21	Codded wire bundle of 20 meter	1
22	Hammer	1
23	Hacksaw	1
24	Metal chassis	4
25	Soldering Iron with stand	4
26	Soldering Lead (50 gm)	4
27	Soldering Flux	4
28	De-soldering pump	4
29	Digital Multi meter	4
30	F – F Connector cable	40
31	M – M connector cable	40
32	F – M connector cable	40
33	Wire Strippers	4
34	Single stand wire (10 meters)	4
35	Breadboard	4



# **SakRobotix Lab**

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36	Assorted Resistor box	2
37	Assorted Capacitor box	2
38	DPDT relay	4
39	7805 IC	4
40	Transistor	4
41	LED box	1
42	Double sided tap	2
43	Insulating tap	2
44	Op amps	4
45	Sun board (2x1 sq. ft)	10
46	Flex Glue bottle	4
47	555 Timer IC	4
48	Buzzer	4
49	Kickboard	2

**Q. How to setup this exciting Robotics laboratory at your college and start the training program?**

**Ans.** SakRobotix Lab, Startup center, IIT Bhubaneswar & School need to sign the MOU to setup **SakRobotix Research Centre** in the schools, where schools have to allocate a dedicated room with basic infrastructure. Now we will setup the robotics lab and start the learning activity.

**Q. Who will offer training?**

**Ans.** SakRobotix will supply dedicated, qualified & experienced trainers to offer quality robotics education.

**Q. What about the service & maintenance of the robots & lab equipment's?**

**Ans.** SakRobotix will offer 100% service & maintenance support.

**Q. What will the students learn out of it and what values will be added to them?**

**Ans.** Student going through this program will develop 12 robots in a year & get explored to many more concepts of STEM (Science –Technology –Engineering –Mathematics). We will also be engaging the students to design & create new INNOVATIVE ROBOTS, so that they can aspire to become a Robotics Scientist/Innovator in future.