

Shri Madhwa Vadiraja Institute of Technology and Management, Bantakal – 574115
Hackothsava 2023 – Synopsis

Team Name:		The Innovation Squad				
College Name and Address:		KIs Gogte Institute of Technology, Khanapur Road,Udyambag,Belagavi-590 008,KARNATAKA,INDIA				
Theme of submission: (check mark the relevant box)		Transformative Education <input checked="" type="checkbox"/>		Sustainable Industrialization <input type="checkbox"/>		
Team Members:		Name	USN	Sem	Mobile no.	email - ID
1	Leader	Anjana Zare	2GI20EC182	6 th	9972618029	anjanazare@gmail.com
2	Member 1	Shrusti Tallur	2GI20EC134	6 th	8310712431	tallurshruti@gmail.com
3	Member 2	Shruti Kamble	2GI20EC135	6 th	9620653741	Shrutikamble5976@gmail.com
4	Member 3	Vandana Bhinge	2GI20EC156	6 th	7204721672	bhingevandana1@gmail.com
Project Title:		"Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws"				

<p>Abstract of the proposed project: (word limit 300)</p>	<p>The "Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws" project aims to provide an engaging and interactive way for learners to explore the concepts of the respiratory and kinetic systems. The project utilizes the Raspberry Pi platform and 3D visualization to create a unique and immersive learning experience for students of all ages.</p> <p>The project consists of two main components: the breathing system and the laws of motion. The breathing system component uses a 3D visualization to provide an in-depth look at the respiratory system, including the lungs, bronchi, and alveoli. Learners can interact with the 3D model and explore the process of breathing in detail, from the inhalation of air to the exchange of gases in the lungs.</p> <p>The laws of motion component of the project explores the fundamental principles of physics that govern motion, such as Newton's laws of motion and the concepts of force, velocity, and acceleration. Using a 3D visualization, learners can see these concepts in action, with examples of objects moving in different directions and at different speeds.</p> <p>To enhance the learning experience, the project includes a tutor that guides learners through the various concepts and provides feedback on their progress. The tutor is built using machine learning algorithms and natural language processing to provide personalized feedback based on the learner's performance.</p> <p>Overall, the "Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws" project offers a unique and engaging way for learners to explore complex concepts in biology and physics. The combination of Raspberry Pi, 3D visualization, and machine learning creates a powerful learning tool that can be used in a variety of educational settings, from traditional classrooms to homeschooling environments.</p>
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<p>Detailed Methodology with proper diagrammatic representation:</p>	<p>The methodology for Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws could involve several steps, such as:</p> <p>Defining the learning objectives: The first step is to identify the learning objectives and the intended outcomes of the interactive guide. This could include understanding the principles of breathing and motion laws, and how they relate to physical movements and exercises.</p> <p>Designing the interactive 3D guide: The next step is to design the interactive 3D guide that will facilitate learning. This could involve creating 3D models of the human body, as well as animations and visualizations that demonstrate the principles of breathing and motion laws.</p> <p>Developing the software: Once the design is finalized, the next step is to develop the software that will power the interactive guide. This could involve using a programming language such as Python or JavaScript, as well as libraries and frameworks for 3D modeling and animation.</p> <p>Testing and refining the guide: Before launching the guide, it is important to test it thoroughly and refine it based on feedback from users. This could involve conducting user testing and collecting feedback on the effectiveness of the guide in achieving the learning objectives.</p> <p>Launching the guide: Once the guide is finalized and tested, it can be launched for public use. This could involve hosting it on a website, or making it available as a downloadable app for mobile devices or desktop computers.</p> <p>Evaluating the effectiveness of the guide: After the guide has been launched, it is important to evaluate its effectiveness in achieving the learning objectives. This could involve collecting data on user engagement and learning outcomes, and using that data to improve the guide in future iterations.</p> <p>Overall, the methodology for Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws involves a combination of design, software development, testing, and evaluation to create an effective and engaging learning experience</p>  <p>The diagram illustrates the hardware setup for a Raspberry Pi. At the top center is the Raspberry Pi logo and the text 'Raspberry Pi'. Below it is a top-down view of the Raspberry Pi board. A blue arrow points from a red SanDisk Ultra PLUS microSD card to the 'microSD card slot on the bottom side' of the board. A blue line connects a '5VDC 2.5A Power Adapter (Micro-USB)' to the power header on the left side of the board. On the right side, a blue line connects the 'Ethernet Socket (LAN)' to a laptop's 'Ethernet Socket (LAN)'. Another blue line connects the 'Ethernet Socket (LAN)' to a keyboard and mouse labeled 'Keyboard & Mouse (USB 2.0)'. A final blue line connects one of the '4 x USB 2.0 ports' to the same keyboard and mouse.</p>
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<p>Software/ hardware required for the implementation:</p>	<p>Raspberry pi, Monitor, Mouse, Keyboard, Speaker, HDMI Cable, USB Cable, Micro SD Card.</p>
<p>Benefit to the society from the project</p>	<p>Pi-Powered Learning: An Interactive 3D Guide to Breathing & Motion Laws is a technology-driven solution that can have several benefits for society, including:</p> <p>Improved learning experience: Pi-Powered Learning uses interactive 3D guides to explain the laws of breathing and motion. This approach can enhance the learning experience by providing students with a more engaging and interactive way to learn.</p> <p>Accessibility: Pi-Powered Learning can be accessed from anywhere, making it an ideal solution for students who cannot attend in-person classes due to various reasons like geographic location, mobility issues, etc.</p> <p>Cost-effective: Pi-Powered Learning can be a cost-effective solution for schools and educational institutions that cannot afford expensive equipment or have limited resources. It can also be a more affordable alternative to traditional textbooks.</p> <p>Increased retention: Interactive 3D guides in Pi-Powered Learning can help students retain the information better. The visual and interactive nature of the guides can help students better understand complex concepts and retain the knowledge for longer.</p> <p>Promotion of STEM education: Pi-Powered Learning can help promote STEM (Science, Technology, Engineering, and Mathematics) education by making it more accessible and engaging. The technology-driven approach can inspire more students to pursue careers in STEM fields.</p> <p>Overall, Pi-Powered Learning can be a beneficial tool for the society, as it can help improve the quality and accessibility of education, promote STEM education, and provide a cost-effective solution for schools and educational institutions.</p>

Signature of the team leader

Signature of the HoD/ Principal
With seal

From

Shruti K. USN-(24I20EC135)
Vandana B. (24I20EC156)
Shrushti T. (24I20EC134)
Anjana Z. (24I20EC182)

To.

HOD of electronics & communication
department.

Subject :- Participation in Hackostava.

Respected Madam,

We the students of EC department, C-Division
are participating in Hackostava which will be held in
Udupi please permite us to participate.

Thank You



HOD Sign



Mentore Sign



HEAD
DEPARTMENT OF
ELECTRONICS & COMMUNICATION ENBC
KLS GOGTE INSTITUTE OF TECHNOLOGY
UDYAMBAG, BELAGAVI- 590008