Literature Review (Secondary Research) Template

Student Name	**B.Roopesh**
Project Topic Title	**An Artificial Intelligence Enabled Machine for Human Behaviour Detection**

Version 1.0 _ Week 1		
1		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://link.springer.com/chapter/10.1007/978-3-319-02675-6_46	W. Bradley Knox , Peter Stone and Cynthia Breazeal	TAMER, Physically embodied robot,Multiple behaviors, Feedback
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Training a Robot via Human Feedback	Aim is to apply a framework for learning from human feedback to a physically embodied robot.	Author used human feedback in multiple forms for training a physical robot in which it determines the Good touch and Bad touch.
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

	Process Steps	Advantage	Disadvantage (Limitation)
1	Data collection and feedback encoding.	Enabling the acquisition of diverse and complex behaviors without the need for explicit programming opens up new possibilities for robots, allowing them to adapt to changing environments and tasks. This, in turn, facilitates the integration of robots into real-world scenarios.	The process of training a robot through human feedback has its limitations. There is a possibility of the feedback being noisy, inconsistent, or incomplete, which can hinder effective learning. Moreover, it may require a considerable amount of human involvement and time to train a robot through feedback
2	Learning algorithm such as TAMER, Iterative Process		
3	Evaluation , Adjustment and Finetuning		
4	Deployment		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Effectiveness of the robot's learning and improvement.	Nature and quality of human feedback provided to the robot.	Algorithm or learning model used by the robot.	Adjustments made by the robot in response to human feedback.

Relationship Among The Above 4 Variables in This article

The quality of human feedback provided (independent variable) influences the effectiveness of the robot's learning and improvement (dependent variable). This influence might be moderated by the robot's learning algorithm or model (moderating variable), while the adjustments made by the robot in response to the feedback serve as a mediator, showcasing how the feedback impacts the robot's behavior or skills during the learning process..

Input and Output	Feature of This Solution	Contribution & The Value of This Work
<table><tr><th>Input</th><th>Output</th></tr><tr><td>Human Feedback</td><td>Robot learning</td></tr></table>	Developing a robot by learning multiple feedbacks from users can help in detecting good touch and bad touch.	Good to have this knowledge from this paper as we review all the basic algorithms under TAMER.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
The process of learning can be made more intuitive for humans because they can communicate their preferences or corrections directly. This makes it accessible for users who may not have technical expertise.	Since this is a performance evaluation of various algorithms, not much to project on negative side as all the things used are defined in advance.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
This work is good, as they tried developing a robot with human feedback which evaluates good touch and bad touch.	TAMER.	Abstract I. Introduction II. Background on TAMER III. The MDS Robot Nexi IV. TAMER Algorithm for Interactive Robot Navigation V. Results and Discussion VI. Conclusion Future work

Diagram/Flowchart

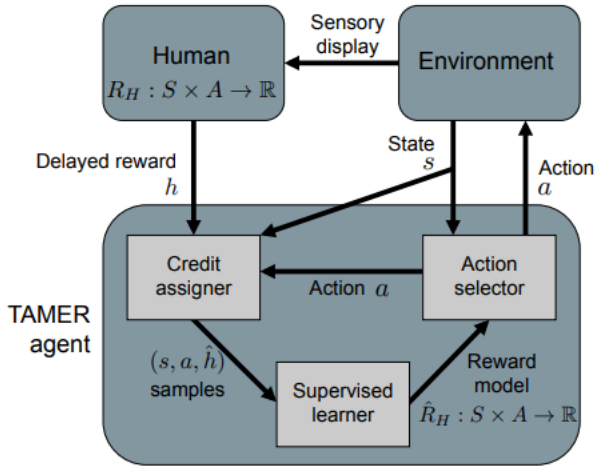

Fig1: An information flow diagram illustrating the TAMER framework

---End of Paper 1-

2		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://sci-hub.se/https:/dl.acm.org/doi/abs/10.1145/1753326.1753567	Martin Saerbeck, Tom Schut, Christoph Bartneck, Maddy D. Janse	Social interaction, Education, Tutoring, Human-robot interaction

The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Expressive Robots in Education Varying the Degree of Social Supportive Behavior of a Robotic Tutor	It emphasizes the importance of social interaction in education so as to improve learning experiences, through realistic communication by means of sounds, gestures and emotions, which can be achieved via virtual agents, particularly humanoid robots.	Tutoring a application with the robotic research platform "interactive Cat" to develop social interaction to improve learning experiences.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

This process aims to develop social support behavior for robotics tutors in a language learning application, using the "interactive Cat" research platform. To achieve effective educational results, it is important to develop mechanisms for changing the level of social interaction.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Development of Social Supportive Behaviors	The use of robots, capable of providing a sensitive and effective teaching tool to help children learn about personal boundaries and safety, could enhance their understanding of good touch and bad touch.	To give the concept of good and bad touch an effective meaning, as well as ensuring that robots' behavior is age appropriate and sensitive to cultural differences, it is necessary to accurately calibrate robot expressions.
2	Integration of Awareness of Good and Bad Touch		
3	Utilization of "Interactive Cat" Platform		
4	Iterative Development Process		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Educational outcomes or performance of the students.	Degree of social supportive behavior exhibited by the robotic tutor, manipulated to observe its impact on learning.	Students' initial proficiency or comfort level with the language, influencing how they respond to the robot's social behaviors.	Students' engagement levels, mediating the relationship between the robot's social support and the ultimate educational outcomes.

Relationship Among The Above 4 Variables in This article

The study investigates how changing the social support behavior of the robotic tutor affects language learning outcomes, taking students' proficiency as a moderating factor and their engagement as a mediating factor into account.

Input and Output		Feature of This Solution	Contribution in This Work
Input	**Output**	It deals with the development of social supportive behavior for robotic tutors in a language learning application. It's using a robotic research platform called the "interactive cat" to help people understand good and bad touch.	In order to improve language learning experiences on educational applications, it aims at increasing the social support of a robot tutor through an "interactive cat" research platform.
Interactions with the robotic tutor through the "interactive Cat" research platform	Responses and behaviors generated by the robot		

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
In an educational environment, the use of robotic tutors with social support behaviors is aimed at teaching students how to recognize good and bad touch. In order to provide effective language learning support, the study has been equipped with a dynamic Cat platform.	Expressive robot as a tutor for teaching awareness of good touch and bad touch. Specific focus will be placed on building social support behaviour for robotic tutors in a language learning application.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper

It underlines the importance of involving expressive robots in education so as to enable effective learning experiences, especially with regard to knowledge about good touch and bad touch, which may be a critical aspect for educational environments where physical interaction with robots takes place.	"Interactive Cat" robotic research platform	Abstract I. Introduction II. Tutoring Application Design III. Evaluation Of The Robot Tutor Application IV. Results V. Discussion VI. Conclusion
Diagram/Flowchart		

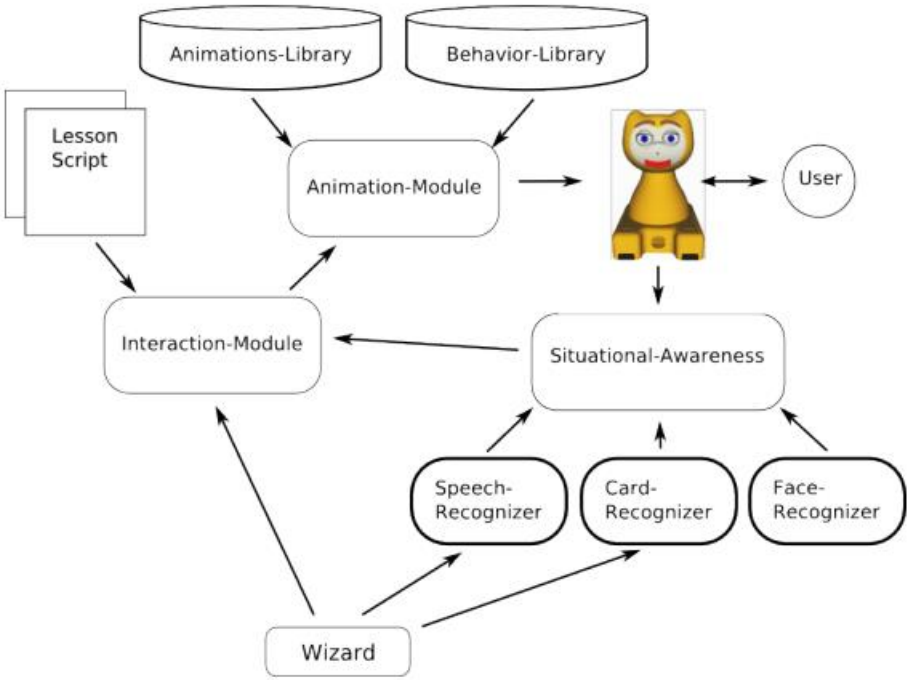

Figure 1: Architecture of the tutoring application.

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3		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://link.springer.com/article/10.1007/s12369-014-0250-2	Sandra Costa, Hagen Lehmann, Kerstin Dautenhahn, Ben Robins, Filomena Soares	Assistive technologies, Body awareness , Human–robot interaction , Socially assistive robots
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Using a Humanoid Robot to Elicit Body Awareness and Appropriate Physical Interaction in Children with Autis	Enhance body awareness in autistic children through humanoid robot interaction.	Touch sensors, Humanoid Robot(KASPAR)
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

	Process Steps	Advantage	Disadvantage (Limitation)
1	Introduction and Research objective, Robot preparation	The study successfully promoted a triadic relationship between the child, the robot, and the experimenter, helping children identify body parts and encouraging gentle touches.	Data collection and analysis can be complex, and the study highlights the challenges involved in interpreting the data.
2	Experiment Design, Participant Selection		
3	Data Collection, Data Analysis		
4	Findings and Conclusion		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Improvement in body awareness and appropriate physical interaction in children with autism.	Design and functionality of the humanoid robot for interaction.	Individual traits or sensory profiles of children with autism.	Engagement level and response patterns during interaction.

Relationship Among The Above 4 Variables in This article

The design and functionality of the humanoid robot (independent variable) influence the improvement in body awareness and appropriate physical interaction among children with autism (dependent variable). This influence may be moderated by individual traits or sensory profiles (moderating variable), while the engagement level and response patterns during interaction serve as a mediator, showcasing how the interaction with the robot impacts the children's body awareness and interaction skills.

Input and Output	Feature of This Solution	Contribution & The Value of This Work
Input: Human Robot Interaction Output: Teaching Autism	Can be derivable to other domains as well	To the extent this work is designed for the Education institutions for detecting good touch and bad touch.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
This innovative approach offers a promising avenue for therapeutic interventions in autism.	The study doesn't address long-term effects or limitations of using humanoid robots for therapy. Ethical considerations need to be carefully considered for robot-assisted interventions in child development.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
Since this designed for educational institutions, the scope of using this in real time can be very	Humanoid Robot.	Abstract I. Introduction

limited. This can be used to teach children to get awareness about good touch and bad touch.		II. Background III. Methods IV. Discussion V. Conclusion and Future work

Diagram/Flowchart

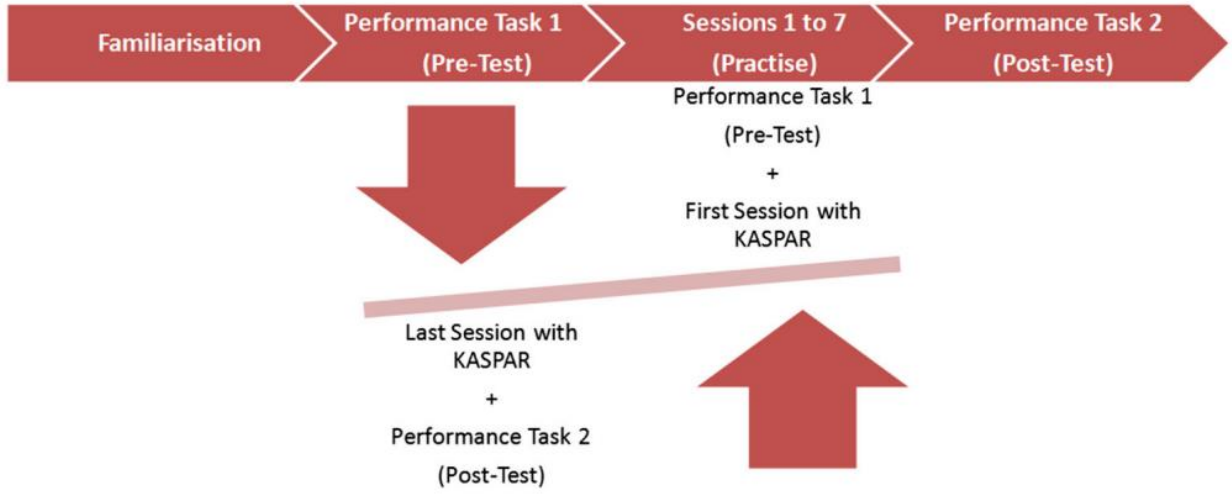


Fig 1: Four different phases of study

--End of Paper 3—

4		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://ieeexplore.ieee.org/abstract/document/1014810	T. Kanda H. Ishiguro T. Ono M. Imai R. Nakatsu	mobile robots , interactive systems , cognitive systems , intelligent control , software architecture
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Development and evaluation of an interactive humanoid robot "Robovie"	The aim is to create a robot that can establish communicative relationships with humans through natural and effective human-robot communication.	Arms, Head, Eyes, Mobile Platform, Sensors, Battery
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

	Process Steps	Advantage	Disadvantage (Limitation)
1	Evaluation of Robot Performance: The document describes an experiment conducted to evaluate the performance of a humanoid robot in interacting with humans. Three	Evaluation of Robot Performance: The document describes an experiment conducted to evaluate the performance of a humanoid robot in interacting with humans. Three	Ensuring the safety of both the robot and its human users is critical. Humanoid robots need robust safety features

	behavior patterns were compared: Passive, Active, and Complex.	behavior patterns were compared: Passive, Active, and Complex.	
2	Methodology: The experiment involved 31 university students as subjects. Each subject observed one of the behavior patterns for five minutes. The impressions of the robot were evaluated using a questionnaire with 28 adjective pairs. The subjects' behaviors towards the robot were also analyzed.	The architecture incorporates psychological measures for interaction-oriented robots, which helps improve their performance.	

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Assess the clarity and effectiveness of communication between the robot and users.	Experiment with different speech synthesis and recognition technologies.	The age of users may moderate the effectiveness of the robot, as preferences and expectations can vary across age groups.	User satisfaction with the interactions may mediate the relationship between the robot's features and positive outcomes.

Relationship Among The Above 4 Variables in This article
The age of users influences how the independent variable (speech synthesis and recognition technologies) affects the dependent variable (communication clarity and effectiveness), and user satisfaction acts as a mediating variable, providing insight into the process through which the robot's features impact positive communication outcomes.

Input and Output	Feature of This Solution	Contribution & The Value of This Work

<table>
<tr><td><table><tr><th>Input</th><th>Output</th></tr><tr><td>touches on the robot</td><td>analysis of touch behaviors.</td></tr></table></td><td>Describes the development of a software architecture for an interaction-oriented robot. The architecture is based on situated modules and communicative units.</td><td>This work focuses on the development and evaluation of an interactive humanoid robot named "Robovie" that aims to communicate and interact with humans in daily life.</td></tr>
<tr><td colspan="2">Positive Impact of this Solution in This Project Domain</td><td>Negative Impact of this Solution in This Project Domain</td></tr>
<tr><td colspan="2">It allows the robots to autonomously exhibit friendly behaviors and interact with humans.</td><td>The implemented situated modules in the robots have a limited range of behaviors, such as handshakes and simple conversations.</td></tr>
<tr><td>Analyse This Work By Critical Thinking</td><td>The Tools That Assessed this Work</td><td>What is the Structure of this Paper</td></tr>
<tr><td>Effective interactive behaviors and the capacity for bodily expression are important for human-robot contact, as the analysis of the robot's performance for human engagement demonstrates. This experiment gives us information about how people see and react to the actions of the robot. These results help to build interaction-oriented robots that are more efficient and natural-feeling.</td><td></td><td>Abstract
Introduction
Software Architecture
Interactive Behaviors
Communicative units
Experimental Phases
Ideas about Body Properties of Robots
Conclusion</td></tr>
<tr><td colspan="3">Diagram/Flowchart</td></tr>
</table>

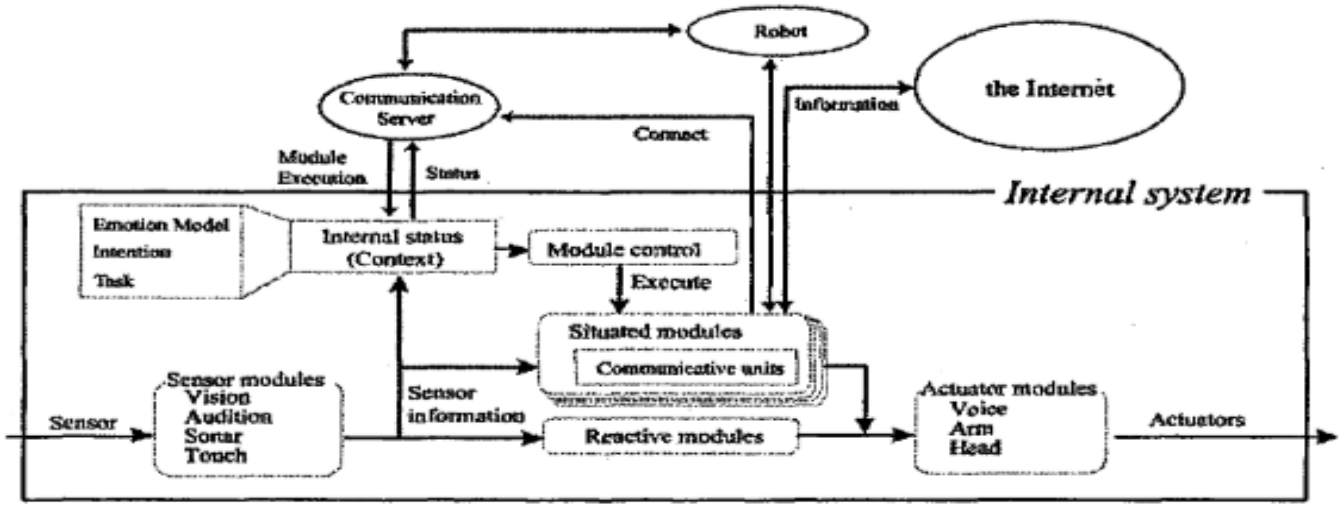


Fig. 6: Software architecture based on Situated modules and Communicative units

--End of Paper 4—

Version 2.0 Week 2		
5		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://shorturl.at/ouzMV	Kerruish Erika Mackie	Robots; touch; affect; haptic creature
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Affective touch in social robots	The goal of this solution is to explore the significance of affective touch in human-robot interactions, specifically focusing on the communication of emotions through touch gestures.	The paper mentions a robotic seal called Paro, which has a skin of tactile sensors under its furry coat.
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

	Process Steps	Advantage	Disadvantage (Limitation)
1	The infiltration of digital technologies into daily life conditions embodied agency in social robotics.	Social robotics' integration of low-tech and creative processes with quantification reconfigures the intimate relationships of emotive contact in novel ways.	The fact that affective computing in social robots ignores the ambivalence and conflicting emotions present in every emotional experience is a drawback.

2	Research with robots like Paro and the Haptic Creature involves the incorporation of touch sensors and expressive design.		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Users' emotional response or mood after experiencing affective touch from social robots.	Affective touch implemented by social robots, with variations in intensity, duration, or type of touch.	Individual differences in users, such as their personality traits, cultural background, or prior experiences with robots, may moderate the impact of affective touch on emotional responses.	User engagement or perceived social connection with the robot may mediate the relationship between affective touch and users' emotional responses.

Relationship Among The Above 4 Variables in This article

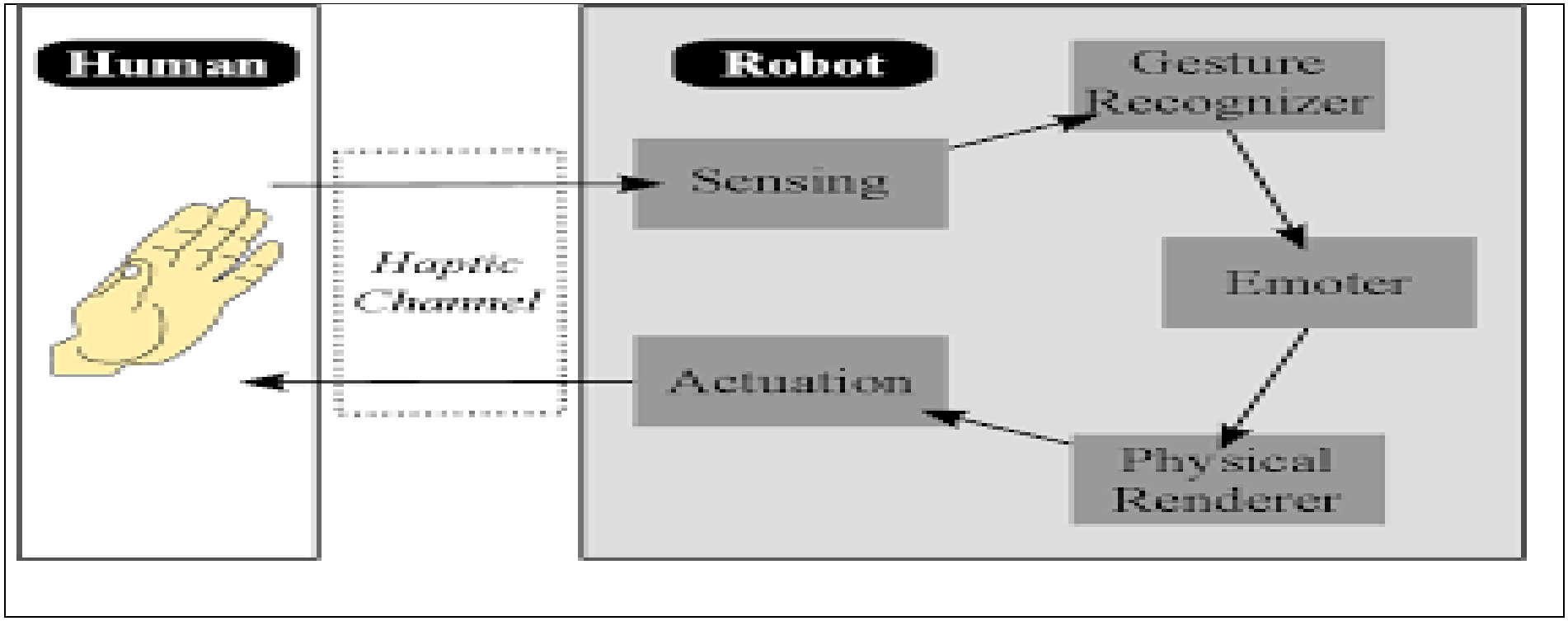
Affective touch in social robots (IV) directly influences users' emotional responses (DV), but the impact may be moderated by individual differences in users (MV), and the process through which affective touch influences emotions may be mediated by user engagement or perceived social connection (MeV).

Input and Output	Feature of This Solution	Contribution & The Value of This Work
Input: Touch on robot **Output**: Building an interaction between humans and robots.	The given document discusses the dynamics of affective touch and the role of touch in human-robot interactions.	The work covered in the provided document advances knowledge of how the body and art objects interact, especially regarding impact and the experience of novel and varied technology.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
The incorporation of affective touch in social robots can contribute to the development of more inclusive and accessible technologies. By	The limitation of quantification in capturing the complexity and multiplicity of touch.

considering the diverse ways in which individuals perceive and express emotions through touch, the robots can accommodate a wider range of users.	

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
The examination of the provided piece emphasizes how crucial touch is to the interaction of the body, affect, and art objects. It highlights the significance of touch in the research of tactile interaction in social robots and artwork, as well as the embodied experience of virtual reality.	Touch dictionary	Abstract 1. Introduction 2. Literature Review 3. Research Methodology 4. Findings and Discussion 5. Conclusion 6. References
Diagram/Flowchart		



--End of Paper 5—

Literature Review (Secondary Research) Template

Student Name	**T. Ashwitha Reddy**
Project Topic Title	**An Artificial Intelligence Enabled Machine for Human Behavior Detection**

Version 1.0 _ Week 1		
1		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.sciencedirect.com/science/article/pii/S2405896318332403	Ryo Midorikawa, Mihoko Niitsuma	Human-robot interaction, touch, handshake
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Effects of Touch Experience on Active Human Touch in Human-Robot Interaction	The aim is to build a better relationship between human and robot through touch.	The author discusses effects and feelings associated with the touch of a robot improve human robot interaction .
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

This process is expected to explore the role played by physical contact, e.g. a handshake, in affecting humans' robot relationships which could include factors like sensory feedback, belief building and emotions related to improving interaction outcomes.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Robot Hardware Selection	Users' comfort and confidence can be enhanced by the formation of a relationship between humanoid robots through tangible contact, such as handshakes, which could improve cooperation and collaboration in different types of interaction scenarios involving Humanoid Robots.	To avoid any unpleasantness or misinterpretation, the robot requires careful design and continuous refinement of its tactile feedback and response which is compatible with a wide variety of societal norms and personal preferences.
2	Design Model for Physical Interaction with a Robot		
3	Design of Handshake Interaction		
4	Interactive design		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
"Interaction outcomes,"Measuring the impact of touch experience.	"Physical contact," such as a handshake, influencing the relationship between humans and robots.	"Sensory feedback," indicating conditions under which the impact varies.	"Emotions," mediating the relationship by influencing beliefs and contributing to the overall effect of touch on human-robot interaction.

Relationship Among The Above 4 Variables in This article
The study intends to investigate how physical contact influences the dynamics between humans and robots, taking sensory feedback, emotions, and belief formation into account as contributing factors to improve interaction outcomes.

Input and Output	Feature of This Solution	Contribution & The Value of This Work
Input: Human-robot physical contact. **Output**: Enhanced human-robot relationship through tactile interaction.	By simulating physical interaction, for example handshakes, this solution highlights the importance of strengthening relations between humans and robots.	The work aims to explore how touch experiences enhance human robot interactions, in particular through handshakes which create more natural and meaningful connections between humans and robots.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain

To promote awareness of appropriate contact, such as handshakes, to build trust and understanding when it comes to recognition of the right or wrong touch, within these human robot relationships.	Using the robot to train people's awareness of good and bad touch through physical contact, such as a handshake, might desensitize them to what it is like to interact with humans in sensitive contexts.	
Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**

It examines the potential of robots for teaching, specifically in view of differentiating between good and bad touch through interactions like handshakes to enhance human interaction with robots by focusing on using safety education as an educational tool that promotes awareness of suitable physical contact.	Physical contact.	Abstract I. Introduction II. How to provide a touch experience to a person III. Design of touch by a robot IV. Interaction design V. Experiment VI. Result and discussion VII. Conclusion

Diagram/Flowchart

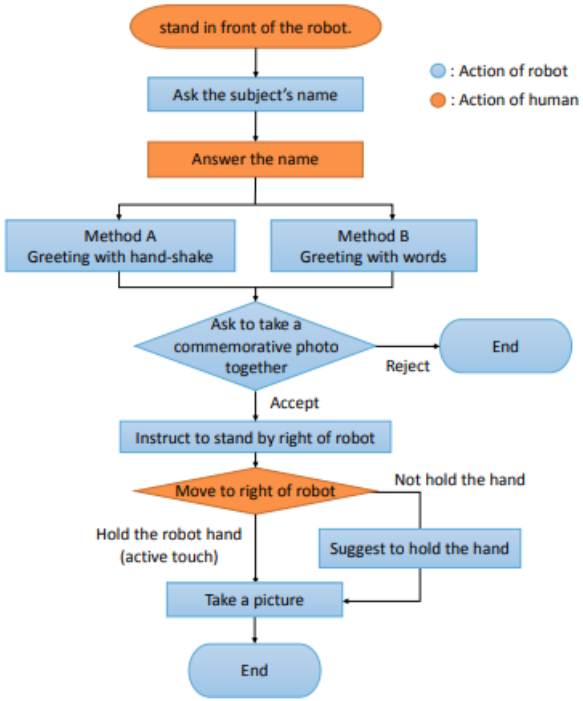


Figure 1: Flow chart of the interaction process

---End of Paper 1-

2		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://sci-hub.se/https:/ieeexplore.ieee.org/abstract/document/1243931	Jill L. Drury, Jean Scholtc, Holly A. Yanco	Awareness, human-robot interaction, critical incident analysis, human-computer interaction.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Awareness in Human-Robot Interactions	To describe the types of awareness that humans have of robot activities and the knowledge that robots have of the commands given them by humans.	Developing a framework for understanding human robot interaction using four different robotic systems.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

This process examines the interaction between humans and robots by examining the types of reciprocal awareness that humans have about robot activities and the knowledge that robots have about human commands, using four different robotic systems.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Focus on Human-Robot Awareness and Knowledge Exchange	It will provide knowledge about the type of awareness that humans have in relation to robot activities and reveal how robots are able to learn commands from humans, resulting in	It may be relevant only to the particular robot systems which are used in this study and is not possible for it to have a direct

		enhanced interactions between people and robots.	impact on other robotics platforms or contexts.
2	Utilization of Four Unique Robotic Systems		
3	Multifaceted Methodology		
4	Advanced Data Processing and Analysis		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Reciprocal awareness between humans and robots, specifically focusing on how humans perceive robot activities and the extent to which robots understand human commands.	Variation in types of robotic systems used for this analysis, as four different systems are considered.	Level of autonomy in the robots or the roles assigned to humans in the collaborative activities.	Factors influencing the direct relationship between human awareness and robot knowledge, possibly encompassing the effectiveness of the human-robot interface.

Relationship Among The Above 4 Variables in This article

The study looks into how different robotic systems affect the mutual awareness between humans and robots, as well as potential moderating and mediating factors that shape this relationship.

Input and Output	Feature of This Solution	Contribution in This Work
Input / **Output**	The solution looks at what humans understand about robot activities and the reciprocal understanding of robots with each other in four different robotics systems. This research has	Explaining how humans and robots have different forms of awareness, including the human perception of robot action as well as a robot's understanding of human commands. This has been

Four disticnt robots	Understanding human awareness of robot activities and the ability of robots to comprehend commands.	looked at a complex dimension of understanding in the interaction between humans and robots.	accomplished by the examination of four different robotics systems.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
It involves the interaction between humans and robots, in particular with regard to their awareness of robot activity and reciprocal comprehension of human commands. In order to examine these aspects in detail they use four different systems, and this shows the positive impact of their studies on developing relationships between humans and robots.	It could have been the result of a misinterpretation or an error in communication between humans and robots that led to confusion, even safety issues. Additionally, if the awareness mechanisms in the robotic systems are not well-designed, it may hinder effective interaction and trust-building between humans and robots.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
It looks especially at how humans and robots interact, with a focus on subtle forms of awareness among people and robots. It's evaluating these dynamics through four different robotic systems, with a view to learning about the complexities of mutual understanding and command execution.	Evaluating human awareness of robot activities	Abstract I. Introduction II. Related work on awareness III. HRI awareness framework IV. Applying the awareness framework V. Discussion

Diagram/Flowchart

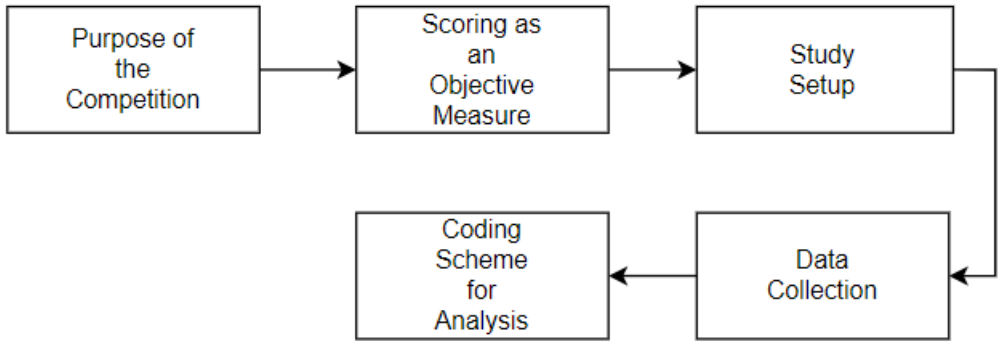


Figure 1: Block diagram of procedure

--End of Paper 2--

3

Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://publuu.com/flip-book/270696/634665/page/2	Noemí Pereda , Georgina Guilera , Maria Forns, Juana Gómez-Benito	Child sexual abuse, Meta-analysis, Epidemiology, Prevalence.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**

The prevalence of child sexual abuse in community and student samples.	Provide awareness of the global breadth of child sexual abuse, and to inform future research and initiatives in this area.	Election of studies, coding of studies, analysis of outliers, computation and combination of effect sizes, homogeneity test and analysis of moderators.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

It provides information about the selection and coding of studies related to child sexual abuse, as well as the analysis of outliers and computation of effect sizes.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Selection of studies	Provide valuable information about child sexual abuse, especially when cross-sectional or prospective studies are restricted due to legal and ethical reasons.	Risk of underestimating the number of real cases of sexual abuse in retrospective studies.
2	Coding of studies		
3	Analysis of outliers		
4	Computation and combination of effect sizes		
5	Homogeneity test		
6	Analysis of moderators		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable

Occurrence or frequency of child sexual abuse in community and student samples.	Various factors or interventions examined across different studies that may influence the prevalence of abuse.	Demographic factors or methodological differences among the studies that affect the strength or direction of the relationship between the independent and dependent variables.	Psychological or social mechanisms that explain how or why certain factors influence the prevalence of child sexual abuse.

Relationship Among The Above 4 Variables in This article
The analysis will most likely involve identifying patterns, outliers, and calculating effect sizes to better understand the nuanced relationships between these variables, which will contribute to a more comprehensive understanding of the factors influencing the prevalence of child sexual abuse.

Input and Output	**Feature of This Solution**	**Contribution & The Value of This Work**
Input / **Output** Data from various research studies on child sexual abuse / Computed prevalence rates	With a significance level of.05., this study uses a meta-analysis to assess the prevalence of child sexual abuse across several studies, computing effect sizes, employing a random effects model, testing for study homogeneity, and exploring potential moderator variables. as well	To the extent this work is designed for the prevalence of child sexual abuse in community and student

Positive Impact of this Solution in This Project Domain	**Negative Impact of this Solution in This Project Domain**
In order to address the prevalence of child sexual abuse in community and educational settings, offer a sensitive and engaging educational tool.	Ignoring moral dilemmas or unforeseen repercussions when teaching kids about this delicate subject.

Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**

Meta-analysis on the prevalence of child sexual abuse, explaining methodology, results, and limitations, but lacking particular conclusions or future study recommendations.	Instrument administration ,sampling techniques, as well as coding of studies and analysis of outliers.	Abstract I. Introduction II. Method III. Results IV. Discussion V. Limitations VI. Conclusions and Future search

Diagram/Flowchart

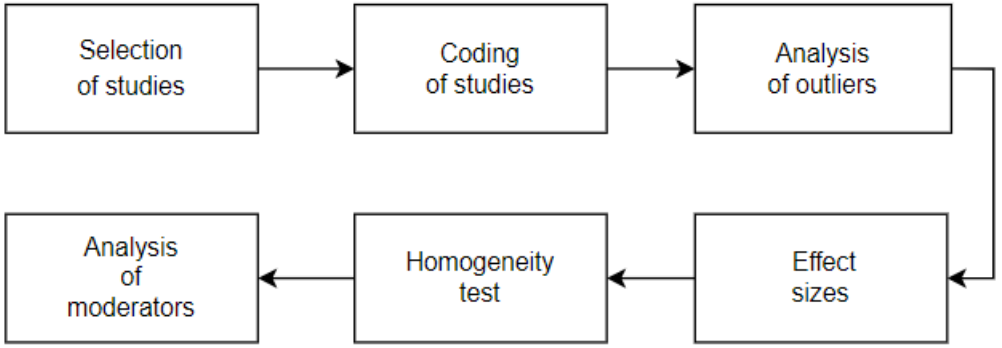


Figure 1: Block diagram of proposed method

--End of Paper 3--

4		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.frontiersin.org/articles/10.3389/fpubh.2022.909254/full	Ruhana Che Yusof, Mohd Noor Norhayati, Yacob Mohd Azman	School-based intervention, child sexual abuse, knowledge, skills, attitude
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Effectiveness of school-based child sexual abuse intervention among school children in the new millennium era: Systematic review and meta-analyses	Assess the effectiveness of school-based initiatives in reducing child sexual abuse among children under the age of 18.	Study Characteristics,Intervention Programs,Outcome Measures,Risk of Bias Assessment,Measures of Treatment Effect,Data Synthesis

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

A systematic search for articles on school-based child sexual abuse prevention or intervention programs was conducted from 2000 to 2022, yielding 30 studies.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Study Selection Process	This assists in identifying any research that may have outlier values when compared to the other studies, allowing for a more reliable data analysis.	Child sexual abuse was the only type of abuse studied; physical abuse, emotional abuse, and neglect were not included.

2	Data Extraction and Management Process		
3	Assessment of Risk of Bias		
4	Measures of Treatment Effect		
5	Data Synthesis		
6	Assessment of Evidence Quality		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Students' knowledge, attitudes, and behaviors regarding child sexual abuse.	Encompassing various methods and strategies employed in the school programs.	Demographic factors or variations in program implementation, influencing the intervention's impact differently across diverse contexts.	Psychological mechanisms through which the interventions exert their effects, such as changes in students' self-efficacy or communication skills.

Relationship Among The Above 4 Variables in This article

Understanding how specific interventions influence students' responses and behaviors in preventing child sexual abuse in the school setting is dependent on the relationship between these variables.

Input and Output	Feature of This Solution	Contribution & The Value of This Work

<table>
<tr>
<td>
<table>
<tr><th>Input</th><th>Output</th></tr>
<tr><td>Extracted data from the studies</td><td>Evaluation of the program's effects</td></tr>
</table>
</td>
<td>This school-based child sexual abuse intervention program employs a variety of tactics and tests, resulting in considerable increases in knowledge and skills among children under the age of 18, while also accommodating students from various grade levels and children with disabilities.</td>
<td>This study adds to the body of knowledge by establishing the effectiveness of school-based CSA intervention programs in improving knowledge, abilities, and attitudes among youth under the age of 18, providing significant information for future preventive program development.</td>
</tr>
<tr><th colspan="2">Positive Impact of this Solution in This Project Domain</th><th>Negative Impact of this Solution in This Project Domain</th></tr>
<tr><td colspan="2">From 2000 to 2021, school-based CSA interventions benefited children under the age of 18 by improving their knowledge, skills, and attitudes about child sexual abuse, encouraging awareness, self-protection, and prevention.</td><td>The analysis did not include meta-regression, which could have provided more insights into the effectiveness of school-based CSA intervention programs.</td></tr>
<tr><th>Analyse This Work By Critical Thinking</th><th>The Tools That Assessed this Work</th><th>What is the Structure of this Paper</th></tr>
<tr><td>A systematic review and meta-analysis of 30 research on school-based child sexual abuse prevention programs are presented, revealing their effectiveness in improving knowledge, abilities, and attitudes.</td><td>Children's Knowledge of Abuse Questionnaire, Personal Safety Questionnaire</td><td>I. Introduction
II. Methods
III. Results
IV. Discussion
V. Conclusion</td></tr>
<tr><th colspan="3">Diagram/Flowchart</th></tr>
</table>

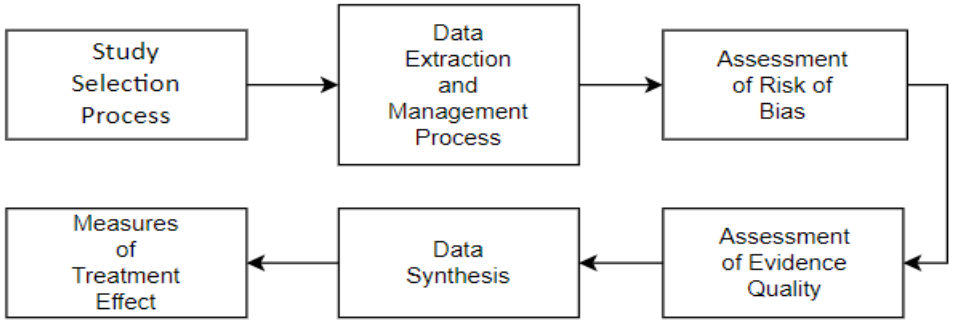


Figure 1: Block diagram of procedure

--End of Paper 4—

Version 2.0 Week 2		
5		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.pdffiller.com/jsfiller-desk17/?requestHash=1418d426a608d9137e2ea8478eb48&lang=en&projectId=1385ec3d3a18bb34ae4c873fc02d7aa058d4368	Rimjhim Tyagi , Bindu T Nair	Knowledge, Good touch, Bad touch, School children

855194&loader=tips&MEDIUM_PDFJS=true&PAGE_REARRANGE_V2_MVP=true&richTextFormatting=true&isPageRearrangeV2MVP=true&jsf-page-rearrange-v2=true&jsf-new-header=false&jsf-redesign-full=false&routeId=33256e1284c66de1b0412dec8cfe7e87#fc313083b5b548f7bb400c86a1269f6a		
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Assessment of awareness of ‘good touch’ and ‘bad touch’ in primary school children of a metropolis in North India	To use a pre-validated, structured questionnaire to determine primary school students' awareness of "good touch" and "bad touch" in a North Indian metropolis.	Utilising a pre-validated, structured questionnaire to conduct an observational cross-sectional study with 200 students in two schools in a North Indian metropolis.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

A structured, pre-validated questionnaire is given to primary school students in order to gauge their awareness and comprehension of "good touch" and "bad touch." After the data has been gathered, Statistical Package for the Social Sciences(SPSS) version 23.0 is used for analysis, and a reinforcement awareness programme is implemented in the school to teach kids about CSA.

	Process Steps	Advantage	Disadvantage (Limitation)

1	Giving primary school students a structured, pre-validated questionnaire to gauge their awareness and comprehension of "good touch" and "bad touch."	Utilising statistical analysis software (SPSS) and a pre-validated questionnaire guarantees the accuracy and dependability of the data gathered, which can aid in the formulation of recommendations and well-informed decisions regarding future interventions.	A school-based reinforcement awareness programme may not be successful in teaching kids about CSA because programme efficacy varies based on a number of variables, including the calibre of the materials used, the mode of delivery, and the children's receptivity.
2	Gathering and utilising SPSS version 23.0 for data analysis.		
3	Educating kids about CSA through a reinforcement awareness programme in the school, which involves displaying instructional films, booklets, flash cards, banners, and toys.		
4	Based on the answers to the questionnaire, classifying the awareness (knowledge) levels as poor, average, good, and excellent.		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Children's comprehension and awareness of "good touch" and "bad touch."	Reinforcement awareness program implemented in the school to	Parental involvement or socio-economic factors that influence the	Reinforcement awareness program on enhancing children's understanding of 'good touch' and

	educate children about Child Sexual Abuse (CSA).	effectiveness of the awareness program	'bad touch,' serving as a mediator in the relationship between the independent and dependent variables.

Relationship Among The Above 4 Variables in This article
The SPSS analysis reveals statistical patterns and relationships between these variables, providing valuable insights for refining and tailoring future awareness campaigns.

Input and Output	**Feature of This Solution**	**Contribution & The Value of This Work**
Input: Assessment of awareness of 'good touch' and 'bad touch' **Output**: Importance of educating children about this sensitive topic to prevent child sexual abuse.	It gives insightful information about how much knowledge primary school students in North India have about "good touch" and "bad touch," and it highlights the importance of organised awareness campaigns to stop child sexual abuse.	The study provides insights on the lack of knowledge and highlights the necessity of organised awareness campaigns to stop child sexual abuse. It also advises parents on the significance of educating their children about this delicate subject to protect their safety and wellbeing.

Positive Impact of this Solution in This Project Domain	**Negative Impact of this Solution in This Project Domain**
In addition to offering insightful information about the degree of awareness of "good touch" and "bad touch," the study highlights the necessity of structured awareness programmes to prevent child sexual abuse.	A heavy dependence on technology could alienate kids who don't have as much access to or experience with robots, which could lead to unequal learning opportunities.

Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**

Using validated questionnaires, the study presents a methodical approach to evaluating children's comprehension of "good touch" and "bad touch," offering a trustworthy gauge of their knowledge in this important area.	Children's Knowledge of Abuse Questionnaire (CKAQ), Children's Knowledge of Abuse Questionnaire-Revised (CKAQRIII)	Abstract I. Introduction II. Objectives III. Method IV. Results V. Conclusion
Diagram/Flowchart		

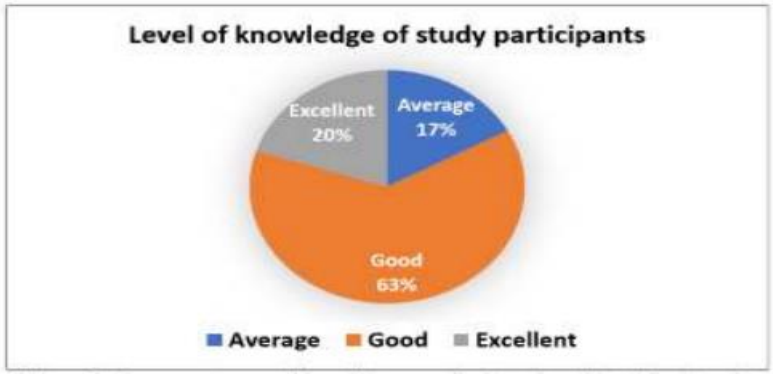


Figure 1: Assessment scores of knowledge ragarding good touch and bad touch

--End of Paper 5—

Literature Review (Secondary Research) Template

Student Name	**Yellu Siri**
Project Topic Title	**An Artificial Intelligence Enabled Machine for Human Behaviour Detection.**

1		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.ripublication.com/irph/ijisaspl2019/ijisav11n1spl_04.pdf	Meghna Raj Saxena Akarsh Pathak Aditya Pratap Singh Ishika Shukla	Object Detection, OpenCV, Python, Haar-features, Eye Detection, Face detection.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
REAL TIME OBJECT DETECTION	The main goal of the present work was to introduce the concepts and techniques of computer vision and object detection.	Author used machine learning algorithms and open cv library for image processing and object detection.
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

The author presented some basic concepts of Computer Vision and defined a tracking problem as a framework. The author also demonstrated some of the fundamental techniques implemented in Python OpenCV and MATLAB that can be used in object detection.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Feature extraction need to be done for different set of data.	Describes machine learning techniques on object detection for various algorithms with high accuracy and less error rate.	Several of the most advanced object detection models available today, particularly those built on deep learning, are intricate and could need a large amount of processing power for both training and inference.

Major Impact Factors in this Work

<Find all main factors and variables that are related to each solutions. Then find the relationship between factors. (Independent variable) causes a change in (Dependent Variable) and it isn't possible that (Dependent Variable) could cause a change in (Independent Variable).

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Accuracy of real-time object detection.	The implementation of different real-time object detection algorithms or techniques.	Environmental conditions, such as varying lighting levels, may moderate the effectiveness of real-time object detection. The impact of the detection algorithm on accuracy may vary under different environmental conditions.	Processing speed or computational efficiency of the real-time object detection algorithm may mediate the relationship between the chosen algorithm (IV) and the accuracy of object detection (DV). A faster algorithm may contribute to

			higher accuracy in real-time detection.

Relationship Among The Above 4 Variables in This article
The choice of real-time object detection algorithm (IV) directly influences the accuracy of object detection (DV). The impact of the algorithm on accuracy may be moderated by environmental conditions (MV), and the process through which the algorithm influences accuracy may be mediated by processing speed or computational efficiency (MeV).

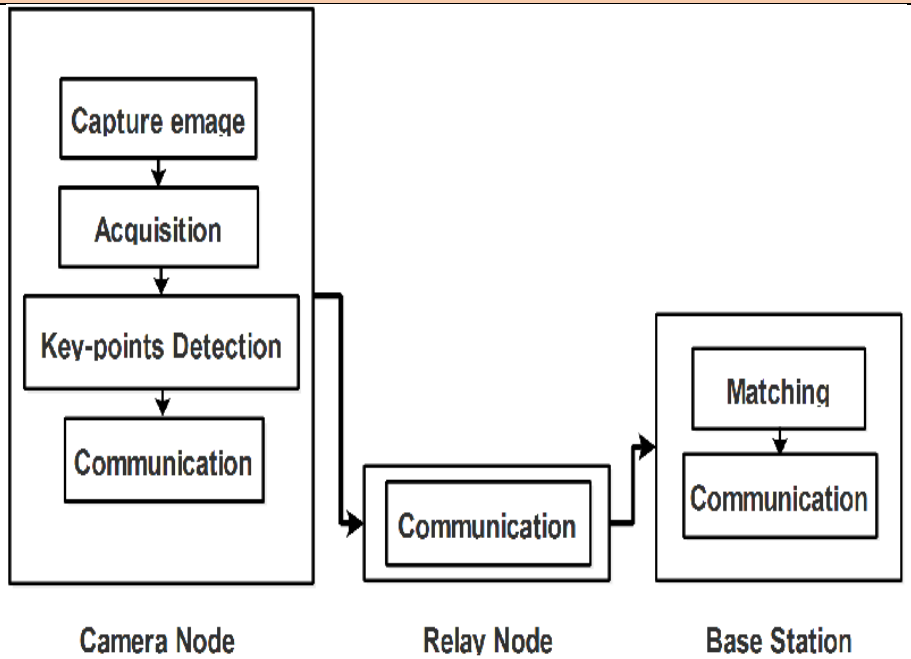
Input and Output	Feature of This Solution	Contribution & The Value of This Work
Input / **Output** Image or video of the object to be identified. / Detecting object with the help of opencv and algorithms developed by machine learning.	Developing a model to detect object such that we can use this in our robot.	Good to have this knowledge from this paper as we are able to identify objects which in turn helps in classifying good touch and bad touch.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain
Object detection has a wide range of positive impacts and applications across various fields.	Since this is a performance evaluation of various algorithms, not much to project on negative side as all the things used are defined in advance.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper

This work is good, as they tried developing an object detection model with high low performances evaluation.	Opencv.	Abstract 1. Introduction 2. Features explanation 3. Implementation 4. Result 5. Conclusion 6. References

Diagram/Flowchart



Overall architecture of object detection

---End of Paper 1-

2		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.sciencedirect.com/science/article/abs/pii/S016786551400333X	Kerem Altun Karon E. MacLean	Affective interfaces ,Haptic ,Human robot interaction, Affect recognition ,Gesture recognition.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Recognizing affect in human touch of a robot.	Touch is a key but understudied element; here, we explore its emotional content in the context of a touch robot.	Data quality, namely the sensors used and their ability to detect expressively informative touches. Recognition algorithm, delivering probabilities of a particular affective user state.
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		

The process of recognizing affect in human touch by a robot involves various stages and components, including sensing, interpretation, and response.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Machine Learning model selection for affect recognition.	It enables the development of a system that can interpret and respond to emotional cues through touch.	ML models for affect recognition require large and diverse datasets with annotated emotional labels.

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Accuracy in recognizing affect in human touch by the robot.	Different algorithms or methods used by the robot to recognize affect in human touch.	Cultural context may moderate the effectiveness of the robot in recognizing affect in human touch. The impact of the recognition algorithm on accuracy may vary across different cultural expectations and expressions of affect through touch.	Higher levels of user trust may enhance the robot's ability to accurately interpret and respond to affective touch.

Relationship Among The Above 4 Variables in This article
The chosen recognition algorithm (IV) directly influences the accuracy of the robot in recognizing affect in human touch (DV). The impact of the algorithm on accuracy may be moderated by cultural context (MV), and the process through which the algorithm influences accuracy may be mediated by user trust in the robot (MeV).

Input and Output	Feature of This Solution	Contribution in This Work
Input / **Output** Touching robot with different pressure levels. / Says the type of the touch and says the emotional status of the person.	An interactive affective computing system requires automatic, real-time recognition of affect.	This work is good, Further investigation of human behaviour in different human-human, human-robot, human-pet interactions will improve applications involving emotion recognition.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain

The impact of recognizing affect in human touch extends to various domains, including healthcare, education, customer service, therapy, and more. It has the potential to improve mental health, foster positive human-robot relationships, and enhance the overall well-being and emotional support of individuals interacting with robots.	Ethical considerations, privacy, and responsible data usage are critical to ensuring the responsible and beneficial use of this technology.

Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**
Logically this is a good step that says the type of touch and it provides us with the information of emotional status of a person.	Tactile sensors Camera Touch sensors	Abstract 1. Introduction 2. Related Work 3. Methodology 4. Analysis and discussion 5. Conclusions and future work 6. Acknowledgements 7. References
Diagram/Flowchart		

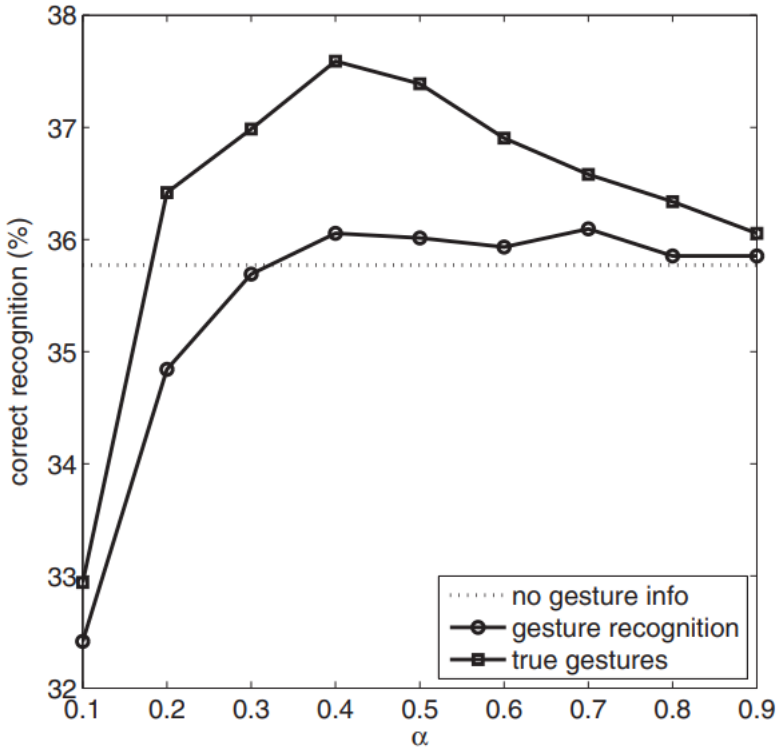


Fig. 12. Results combining gesture recognition with affect recognition.

--End of Paper 2—

3		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://sciencescholar.us/journal/index.php/ijhs/article/view/7410	Kul Pooja Sunil Kumar Dular Suman Vashist	awareness bad touch, child, education, good touch, sexual abuse, violence.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Awareness of good and bad touch among children	Our society needs to evolve in creating awareness platforms not only for parents, but for children too.	Creating awareness of good and bad touch among children is a collaborative effort that involves parents, caregivers, teachers, and communities.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

Creating awareness of good and bad touch among children involves a thoughtful and sensitive approach, often implemented through educational programs and communication strategies.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Children are educated about evaluation of good touch and bad touch.	Creating awareness of good and bad touch among children offers numerous advantages, as it plays a crucial role in child safety and well-being.	Teaching children about good and bad touch can sometimes lead to fear and anxiety. Children might become overly cautious or anxious about all physical

			contact, even when it is appropriate and safe.

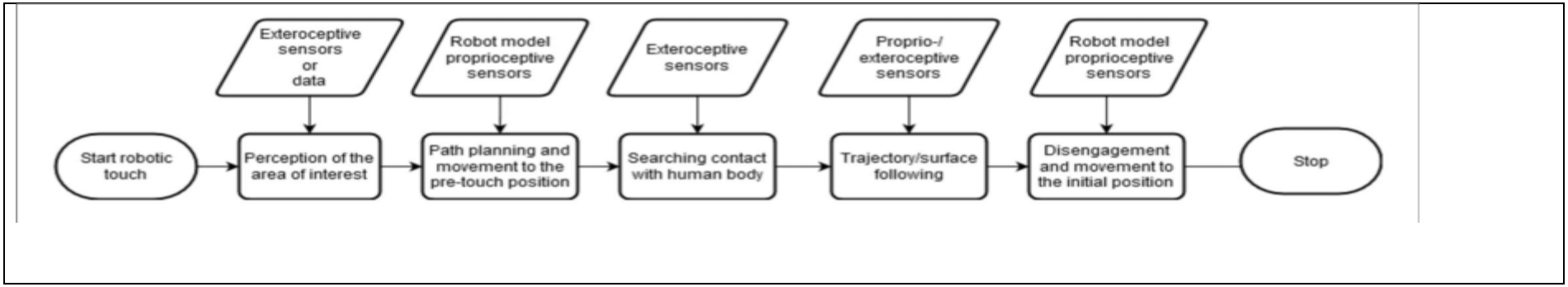
Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
This can be assessed through quizzes, interviews, or other methods to gauge children's understanding of what constitutes good and bad touch.	The educational program designed to teach children about good and bad touch serves as the independent variable. Different approaches to education may be tested to determine their effectiveness.	Cultural norms and values may moderate the effectiveness of the educational program. Different cultures may have varied perspectives on what is considered appropriate or inappropriate touch, influencing how the awareness program is received.	The level of communication children have with trusted adults (parents, teachers, counselors) can mediate the effectiveness of the educational program. Open communication allows children to seek guidance and clarification about good and bad touch, reinforcing the information learned in the program.

Relationship Among The Above 4 Variables in This article

The educational program (IV) directly influences children's knowledge of good and bad touch (DV). The impact of the program may be moderated by cultural context (MV), and the effectiveness of the program may be mediated by the level of communication children have with trusted adults (MeV). The combination of these variables contributes to the overall success of creating awareness of good and bad touch among children.

<table>
<tr><th colspan="2">Input and Output</th><th>Feature of This Solution</th><th>Contribution & The Value of This Work</th></tr>
<tr><td colspan="2"><table><tr><th>Input</th><th>Output</th></tr><tr><td>Child sensing the touch.</td><td>Child able to evaluate the type of touch with the involvement of a guardian.</td></tr></table></td><td>Empower children to be able to evaluate the touch.</td><td>It's helpful to have this information from the paper as we consider how to instruct kids on appropriate and inappropriate touch.</td></tr>
<tr><th colspan="2">Positive Impact of this Solution in This Project Domain</th><th colspan="2">Negative Impact of this Solution in This Project Domain</th></tr>
<tr><td colspan="2">Raising children's understanding of appropriate and inappropriate touch has many benefits since it is essential to their safety and wellbeing.</td><td colspan="2">It's possible that schools, parents, and other caregivers won't get enough training on how to properly teach kids about appropriate and inappropriate touch, which could result in mixed or unclear messages.</td></tr>
<tr><th colspan="2">Analyse This Work By Critical Thinking</th><th>The Tools That Assessed this Work</th><th>What is the Structure of this Paper</th></tr>
<tr><td colspan="2">This is an excellent piece of work because it aims to educate kids about right and wrong touch with the aid of a guardian.</td><td>Child awareness.</td><td>Abstract
1. Introduction
2. Types of child abuse
3. Ways of Identification of Abuse
4. Impact of Abuse on a Child
5. Methods of Awareness Creation at Different Levels
6. Conclusion
7. References</td></tr>
<tr><th colspan="4">Diagram/Flowchart</th></tr>
</table>



--End of Paper 3--

4

Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://dl.acm.org/doi/pdf/10.1145/3593812	MIKE E. U. LIGTHART MARK A. NEERINCX, KOEN V. HINDRIKS	Child-robot interaction, co-regulation, co-creation, user study
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
It Takes Two: Using Co-creation to Facilitate Child-Robot Co-regulation	While interacting with a social robot, children have a need to express themselves and have their expressions acknowledged by the robot.	The study focuses on measuring the effectiveness and satisfaction of Interactive Design Paradigms (IDPs) for

		children and this also examines children's attitude towards the robot.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

It suggests a process of co-creation between children and robots to support co-regulation, emphasizing a collaborative relationship for emotional regulation.

	Process Steps	Advantage	Disadvantage (Limitation)
1	The robot starts by expressing a need for specific content, such as a sound effect or gesture. The child is then given the option to either create the content themselves or have the robot download two pre-made options.	Creating the Content: The advantage of this step is that it allows the child to express	the study is the limited sample size and representation within the sample.
2	If the child chooses to create, they can choose between three levels of involvement: high (creating the content from scratch), mid (choosing between pre-made options), or low (letting the robot pick a pre-made option). The co-creation process aims to increase the child's agency and engagement with the robot		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable

This could be measured through indicators of successful emotional regulation, collaboration, and mutual influence between the child and the robot.	This variable includes the specific activities, tools, or strategies employed to involve the child in the customization or design of the robot's features and behaviors.	Individual differences in children, such as age, personality traits, or prior experiences with robots, which may moderate the effectiveness of the co-creation process in facilitating co-regulation.	The emotional engagement of the child during co-creation sessions may serve as a mediating variable.

Relationship Among The Above 4 Variables in This article

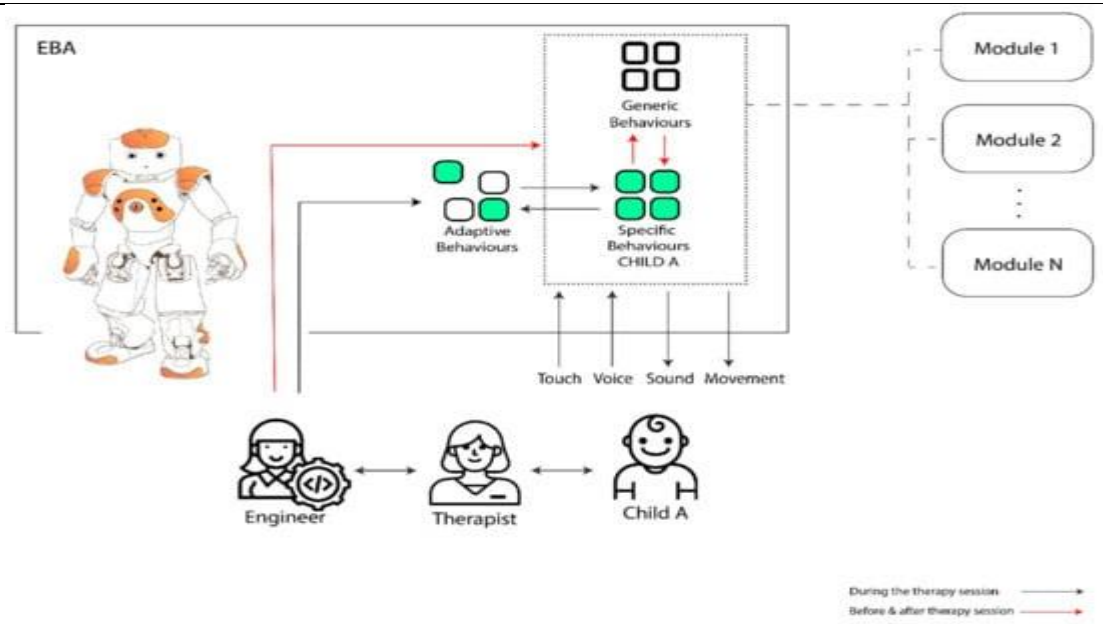
The co-creation mechanism (IV) is expected to directly influence child-robot co-regulation (DV). This relationship may be moderated by child characteristics (MV), and the process could be mediated by the level of emotional engagement during co-creation sessions (MeV). Understanding these relationships can provide insights into how co-creation contributes to successful child-robot co-regulation.

Input and Output	Feature of This Solution	Contribution & The Value of This Work
Input / **Output** Child expresses their feeling / Increased interaction between child and robot.	Active involvement of children in the design and development process fosters a sense of ownership and engagement	Aims to improve children's agency and co-regulation during social interactions with a robot. The study found that the co-creation activity positively impacted children's engagement and acceptance of the robot, as well as their ability to co-regulate their emotions during the interaction.

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain

The activity positively affects the acceptance of the robot, which is crucial for building trust and rapport between the child and the robot.	It is important to note that the study had some limitations, such as a limited sample size and a single-session interaction, which may affect the generalizability of the results.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
It is a valuable contribution to the field of human-robot interaction. However, further research is needed to explore the long-term effects of the co-creation activity and to compare it to other approaches or interventions. Additionally, future studies should consider using larger sample sizes and more diverse populations to increase the generalizability of the results.	qualitative and quantitative research methods statistical analysis	Abstract 1. Introduction 2. Related Work 3. Design Process and Structure 4. User Study 5. Discussion 6. Conclusion 7. References
Diagram/Flowchart		



--End of Paper 4—

Version 2.0 Week 2		
5		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.frontiersin.org/articles/10.3389/frobt.2022.840335/full	Rachael Bevill Burns, Hyosang Lee, Hasti Seifi, Robert Faulkner, Katherine J. Kuchenbecker	human-robot interaction, socially assistive robotics, social touch, affective touch, tactile sensors, gesture classification
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Endowing a NAO Robot With Practical Social-Touch Perception	The objective of this solution is to integrate touch perception into robots in order to enable them to mimic social touch interactions that commonly occur between humans.	Incorporation of contextual information to interpret touch in a social context. Understanding whether a touch is meant to convey comfort, support, or some other social cue is crucial for appropriate robot responses.
The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process		
The process involves equipping the NAO robot with the capability to perceive and respond to social touch through a combination of sensor calibration, machine learning, context integration, and user testing.		

	Process Steps	Advantage	Disadvantage (Limitation)
1	Collect a dataset of touch interactions to train and validate the robot's touch perception system.	Detection of Social-Touch Communication Cues: The tactile-perception system using fabric-based sensors has shown promising results in detecting necessary social-touch communication cues from users.	Classification Accuracy: The system's classification accuracy may be reduced due to the discarding of useful information about the intensity of contacts that occur.
2	Develop algorithms for processing the data collected by tactile sensors. This step involves filtering, feature extraction, and potentially the use of machine learning techniques to interpret touch signals.	Customizability: Fabric-based tactile sensors can be tailored to different robot body parts, allowing for versatility in their application.	Physical Design Implications: The exposed sides of the sensors can interfere with each other's signals when the edges of two sensors touch.
3	Incorporate contextual information into the touch perception system. Understand the social context in which touches occur to better interpret the meaning behind different touch interactions.	Engaging and Meaningful Interactions: The integration of touch perception through fabric-based tactile sensors enables robots to mimic social touch interactions that occur between humans.	

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
This could be measured through indicators of the NAO robot's ability to accurately perceive and respond to social touches in real-world interactions.	The mechanism or system designed to endow the NAO robot with practical social-touch perception.	Individual differences in users, such as their familiarity with robots, comfort level with social touch, or cultural background, which may moderate the effectiveness of the NAO robot's social-touch perception.	The user's perception of the robot's responsiveness to social touch may serve as a mediating variable.

Relationship Among The Above 4 Variables in This article
The touch perception system (IV) is expected to directly influence the practical social-touch perception of the NAO robot (DV). This relationship may be moderated by user characteristics (MV), and the process could be mediated by users' perceptions of the robot's responsiveness to social touch (MeV).

Input and Output		Feature of This Solution	Contribution & The Value of This Work
Input	**Output**	It can accurately detect social touch, including the contacted body part, force intensity, and gesture.The system utilizes tactile sensors that act as individual taxels. These sensors can capture both the gesture and force level conducted during touch interactions.	The value of this work lies in its potential to enhance human-robot interactions. By enabling robots to perceive and respond to touch, users can have more immersive and satisfying experiences when interacting with robots.
touch gesture classification	general touch location is determined and it is classified.		

Positive Impact of this Solution in This Project Domain	**Negative Impact of this Solution in This Project Domain**	
It enables robots to mimic social touch interactions that are common between humans, providing users with more engaging and meaningful experiences in teaching, assistance, and companionship.	The exposed edges of the sensors can cause electrical shorting when they touch each other, leading to interference with the signals.	
Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**
The work aim to enable robots to mimic social touch interactions that commonly occur between humans in everyday life. The study includes a user study and physical sensor testing to develop a touch-perception system for robots.	Tactile sensor	Abstract 1. Introduction 2. Tactile sensor design and fabrication 3. User Study testing 4. User Study results 5. Discussion 6. Funding 7. Conclusion 8. References
Diagram/Flowchart		

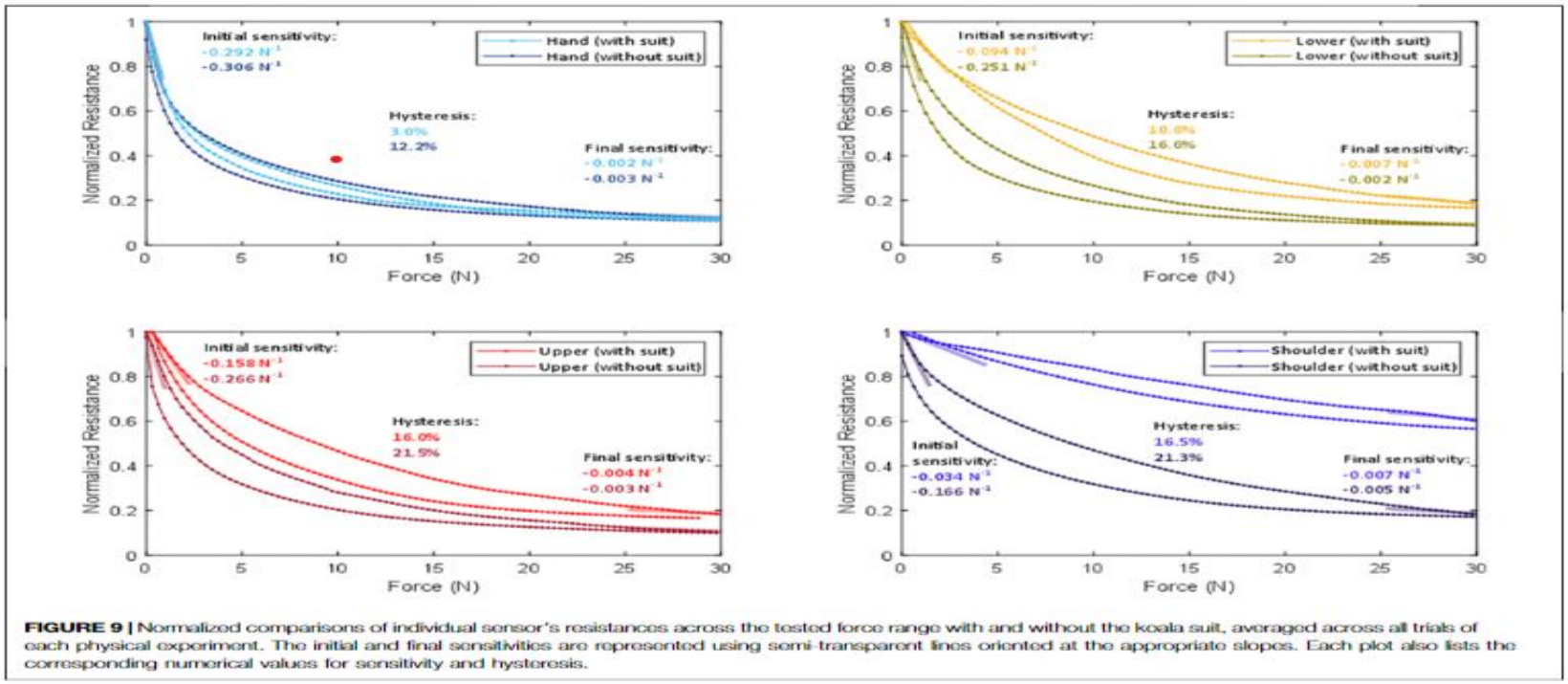


FIGURE 9 | Normalized comparisons of individual sensor's resistances across the tested force range with and without the koala suit, averaged across all trials of each physical experiment. The initial and final sensitivities are represented using semi-transparent lines oriented at the appropriate slopes. Each plot also lists the corresponding numerical values for sensitivity and hysteresis.

--End of Paper 5

Literature Review (Secondary Research) Template

Student Name	**T. Laxmi Prasanna**
Project Topic Title	**An Artificial Intelligence Enabled Machine for Human Behavior Detection**

Version 1.0 _ Week 1		
1		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.researchgate.net/publication/326809690_AWARENESS_OF_GOOD_AND_BAD_TOUCH_AMONG_CHILDREN	Manisha Praharaj	Good Touch, Bad Touch, Child Sexual Abuse, Violence Against Children, Awareness.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Awareness of Good touch and Bad touch	The aim is to help children become aware of the concepts of Good touch and Bad touch by involving their parents in the process.	The author discusses how parents play a crucial role in educating their children about recognizing the difference between appropriate and inappropriate physical contact and being aware of the signs associated with it.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

The process for raising awareness about good touch and bad touch among children involves Parents, Teachers, Child Protection Agencies, Health care professionals, etc.. The Author primarily involves parents. They are the key participants in educating their children about good touch and bad touch by teaching signs of sexual abuse and its effect on children.

	Process Steps	Advantage	Disadvantage (Limitation)
1	Parents are educated about the importance of teaching their children about good touch and bad touch.	Children often feel most comfortable discussing sensitive topics with their parents, creating a trusting environment.	Some parents may not have the necessary knowledge to effectively educate their children on this subject.
2	Parents communicate with their children, discussing the differences between good and bad touch in an age-appropriate manner. Parents also help children in recognizing and understanding the signs of bad touch.	Children can learn about these concepts at a young age, which can be crucial for their safety.	Children may feel uncomfortable discussing such topics with their parents.

Major Impact Factors in this Work

<Find all main factors and variables that are related to each solutions. Then find the relationship between factors. (Independent variable) causes a change in (Dependent Variable) and it isn't possible that (Dependent Variable) could cause a change in (Independent Variable).

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable

Child's understanding of good touch and bad touch.	Parental involvement in teaching about good touch and bad touch.	Child's age or prior exposure to similar education.	Quality of communication between parent and child.

Relationship Among The Above 4 Variables in This article
The article might explore how parental involvement impacts the child's understanding of good touch and bad touch (dependent variable) directly and indirectly through the quality of communication (mediating variable). Additionally, it could consider how the child's age or prior exposure to similar education (moderating variable) affects the effectiveness of parental involvement.

Input and Output	**Feature of This Solution**	**Contribution & The Value of This Work**
Input: Parental Involvement **Output**: Child Awareness in evaluating good touch and bad touch.	Empower parents to be the primary educators in safeguarding children against harmful touch.	Good to have this knowledge from this paper as we finding ways to teach children about good touch and bad touch .

Positive Impact of this Solution in This Project Domain	**Negative Impact of this Solution in This Project Domain**
Parents play key role in educating their children and also they offer guidance that is customized to their child's age and level of maturity.	**Some parents may lack the necessary knowledge to effectively educate their children on this topic.**

Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**
This work is good, as they tried to bring awareness among children with the help of parents in which	Parental Education.	Abstract

children can gain knowledge about good and bad touch.		VIII. Introduction IX. Child Sexual Abuse X. Signs and Symptoms of Sexual Abuse XI. Adult's Signs in their Relationship with a Child for Sexual Reasons XII. Effects of Child Abuse XIII. Awareness about Child Abuse XIV. Role of Parents XV. Conclusion
Diagram/Flowchart		

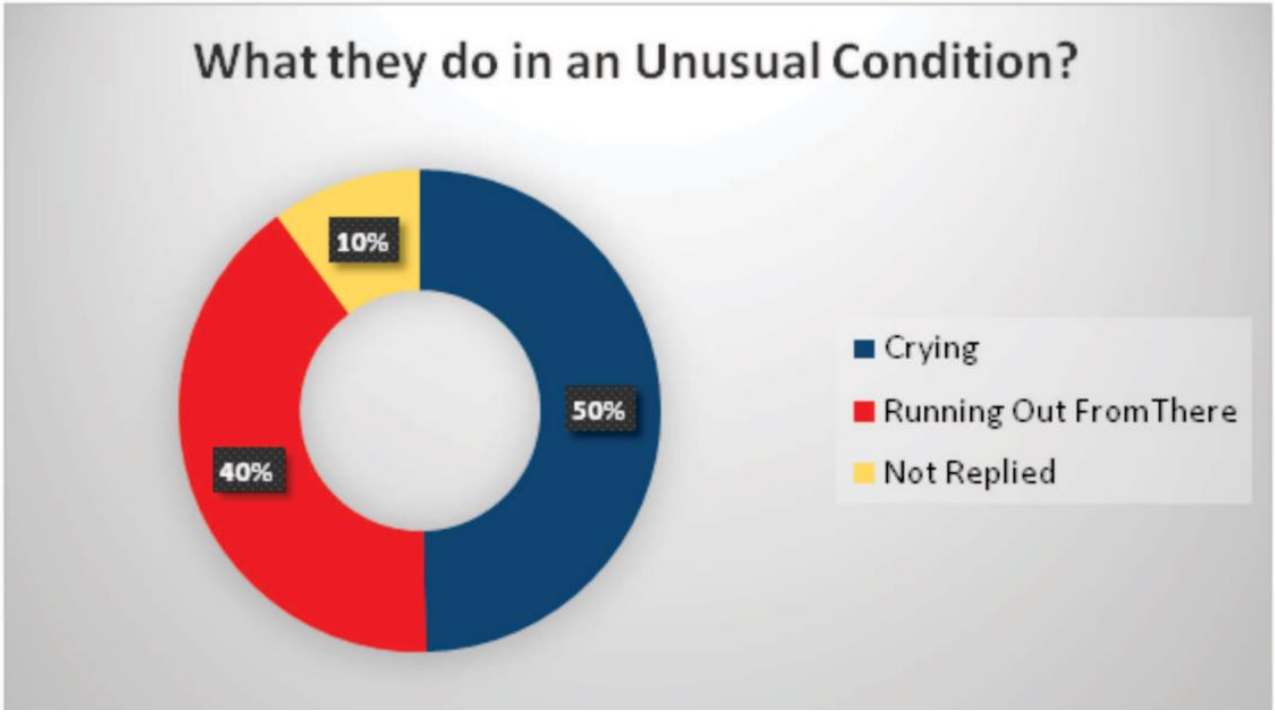


Fig1 : Status of the respondents to the Question what they do in an Unusual condition

---End of Paper 1-

2	
Reference in APA format	

URL of the Reference	Authors Names and Emails	Keywords in this Reference
https://www.researchgate.net/publication/224058253_Behavior_Analysis_of_Children%27s_Touch_on_a_Small_Humanoid_Robot_Long-	Fumihide Tanaka and Javier R.Movellan	Good Touch, Bad Touch, Humanoid Robot, Early Childhood Education Center.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Creating Humanoid Robot which assists children in real world.	To evaluate Good touch and bad touch created a humanoid robot which teaches children about different types of touch.	Training a robot which teaches children about good touch and bad touch with different life time examples.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

	Process Steps	Advantage	Disadvantage (Limitation)
1	Programming and Behaviour Design	The robot can provide a safe and non-threatening environment for children to learn about this sensitive topic.	Limited adaptability of a humanoid robot in handling unique and complex situations.
2	Real-time Examples Database		
3	Interactive Workshops		

4	Feedback and Monitoring		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Child's understanding of different types of touch.	Use of the humanoid robot for teaching.	Child's age or developmental stage.	Quality of interaction between the child and the humanoid robot.

Relationship Among The Above 4 Variables in This article

The effectiveness of the robot's teaching (independent variable) on the child's understanding (dependent variable) is influenced by the child's age or developmental stage (moderating variable). This impact is mediated by the quality of interaction and engagement between the child and the humanoid robot (mediating variable).

Input and Output		Feature of This Solution	Contribution in This Work
Input	**Output**	This is simply an creation of humanoid robot which teaches good touch and bad touch. We can still integrate with another app which gives us even more better results.	Designing humanoid robot is a good thought, where good touch and bad touch are evaluated correctly.
Robot's sensors and cameras	Robot's verbal and physical responses		

Positive Impact of this Solution in This Project Domain	Negative Impact of this Solution in This Project Domain

Humanoid robot is a good advancement to filter good touch, where two different touches are evaluated perfectly.	Potential desensitization of children to the seriousness of the issue.

Analyse This Work By Critical Thinking	The Tools That Assessed this Work	What is the Structure of this Paper
Logically this is a good step that filters good touch on multiple scenarios. Since this is static design new components cannot be screened.	Humanoid Robot	1. Abstract 2. Introduction 3. Related Work 4. Experiment Results 5. Conclusion

Diagram/Flowchart

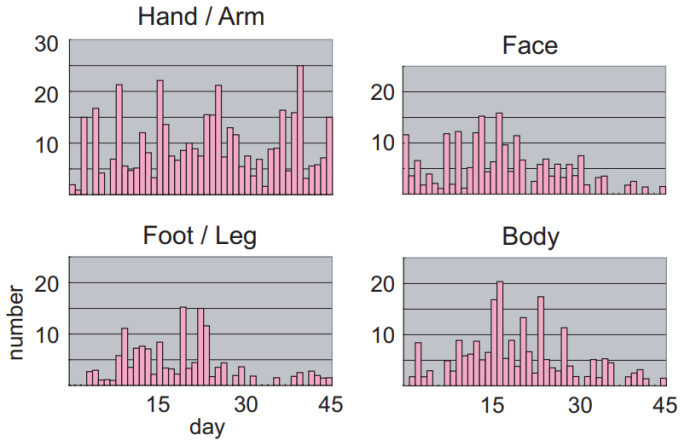


Fig 1: The number of childrens touch on QRIO with four categories each of which represents a form of touch based interaction.

--End of Paper 2—

3		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://ieeexplore.ieee.org/abstract/document/4600641/figures#figures	Anja Austermann, Seiji Yamada	Positive and negative feedback, Robot, Hidden Markov Models, Classical conditioning, Reinforcement Learning.
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
A Proposed Model for giving feedback to pet robot by using positive and negative rewards.	Giving Feedback to robot by using different models.	Hidden Markov Models, Classical conditioning.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

	Process Steps	Advantage	Disadvantage (Limitation)
1	Robot behavior is observed by human teacher during interactions.	HMM can help the robot understand patterns and sequences in feedback, improving the quality of responses.	To ensure successful implementation, a substantial amount of training data may be required.

2	Teacher categorizes the robot's actions as positive or negative feedback.		
3	Hidden Markov Model is employed to model the user's feedback patterns.		
4	Classical conditioning principles are used to associate specific robot actions with positive or negative feedback.		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Effectiveness of feedback in shaping the behavior of the pet robot.	Type and frequency of positive and negative rewards given as feedback.	Learning algorithm or adaptability of the pet robot.	Specific behaviors exhibited by the pet robot in response to the rewards.

Relationship Among The Above 4 Variables in This article

The type and frequency of positive and negative rewards (independent variable) given as feedback potentially influence the behavior of the pet robot (dependent variable). This influence might vary based on the learning algorithm or adaptability of the robot (moderating variable).

<table>
<tr><td colspan="3"></td></tr>
<tr><th>Input and Output</th><th>Feature of This Solution</th><th>Contribution & The Value of This Work</th></tr>
<tr><td><table><tr><th>Input</th><th>Output</th></tr><tr><td>Multimodal feedback</td><td>Adaptability to feedback</td></tr></table></td><td>Can be derivable to other domains as well</td><td>To the extent this work is designed for the Education institutions for giving feedback to robot.</td></tr>
<tr><th colspan="2">Positive Impact of this Solution in This Project Domain</th><th>Negative Impact of this Solution in This Project Domain</th></tr>
<tr><td colspan="2">Helps the robot understand what actions are favorable or unfavorable.</td><td>Use of negative rewards might raise ethical concerns about how we treat artificial entities.</td></tr>
<tr><th>Analyse This Work By Critical Thinking</th><th>The Tools That Assessed this Work</th><th>What is the Structure of this Paper</th></tr>
<tr><td>To teach robots to evaluate good and bad touch, they need to be trained via feedback. This allows for feedback to be given using different models.</td><td>Hidden Markov Models, Classical conditioning, Reinforcement Learning.</td><td>Abstract
VII. Introduction
VIII. Related Work
IX. Training Tasks
X. Assumptions
XI. Conclusion and Future work</td></tr>
<tr><th colspan="3">Diagram/Flowchart</th></tr>
</table>

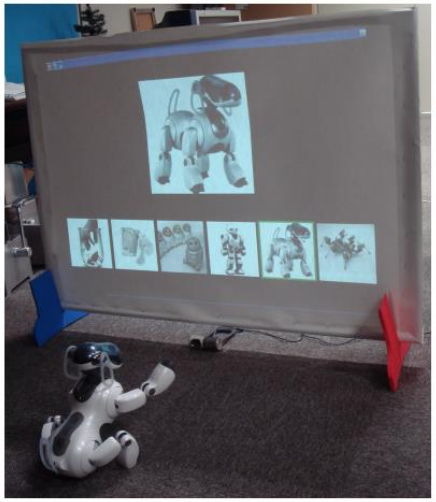


Figure 1: AIBO playing. The goal of the task, is to find the picture that corresponds to the sample above

--End of Paper 3--

4		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.sciencedirect.com/science/article/abs/pii/S016786551400333X	Kerem Altuna Karon E. MacLeanb	Affective interfaces, Haptic, Human robot interaction, Affect recognition, Gesture recognition

The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
Recognizing affect in human touch of a robot.	Developing a system for recognizing human touch of a robot.	Affect recognition, Gesture recognition

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

	Process Steps	Advantage	Disadvantage (Limitation)
1	Participants imagine and express nine emotions in a 2-D affect space. They interact with a lap-sized robot equipped with pressure sensors and an accelerometer, using touch to express emotions.	Enhancing human-robot interaction through non-verbal communication.	Faced challenges in accurately interpreting diverse human emotions through touch.
2	Data is collected and then classified using random forest algorithm. Then classification rates are determined.		
3	The research has implications for designing emotionally responsive robots and integrating		

	unintrusive affect sensing into real-world interactions.		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Accuracy of the robot in recognizing emotions conveyed through human touch.	Sensor technology or programming used in the robot for touch interpretation.	Contextual or cultural influences affecting touch interpretation.	Specific tactile cues or patterns identified by the robot in human touch.

Relationship Among The Above 4 Variables in This article

The sensor technology and programming (independent variable) used by the robot to interpret human touch potentially influence its accuracy in recognizing emotions conveyed through touch (dependent variable). This recognition might be influenced by contextual or cultural factors (moderating variable), while the specific tactile cues or patterns identified by the robot serve as a mediator, aiding in the interpretation of emotions from human touch.

Input and Output		Feature of This Solution	Contribution & The Value of This Work
Input	**Output**	The solution entails advanced machine learning algorithms for emotion classification, utilizing pressure sensors and accelerometers in the robot prototype, and investigating the fusion of direct	Incremental learning is an added advantage of this classifier. So that when new stories of touch is also recognized and filtered.
Human Touch	Emotion Recognition		

	and inferred affect recognition to improve emotional comprehension and human-robot interaction.	
Positive Impact of this Solution in This Project Domain		**Negative Impact of this Solution in This Project Domain**
Enhancing the emotional connection between humans and robots can lead to more empathetic and responsive interactions.		Risk of misinterpretation or insensitivity in robot responses, which could lead to user frustration.
Analyse This Work By Critical Thinking	**The Tools That Assessed this Work**	**What is the Structure of this Paper**
Evaluating the effectiveness of emotion recognition through touch interactions and assessing the feasibility of combining direct and inferred affect recognition. It provides valuable insights into the potential for improving human-robot interactions and offers a foundation for designing emotionally responsive robots.	Affect recognition, Gesture recognition	Abstract I. Introduction II. Methodology III. Analysis and Discussion IV. Conclusion
Diagram/Flowchart		

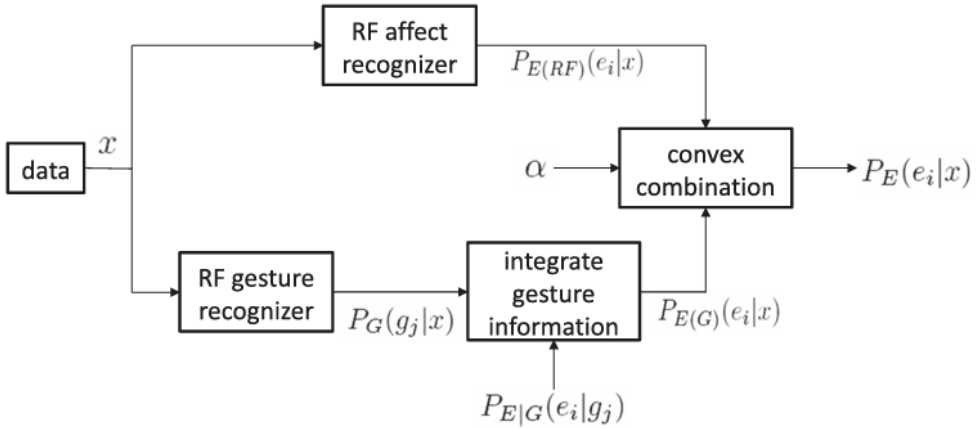


Fig. 4. Combining gesture recognition information with affect recognition.

--End of Paper 4—

Version 2.0 Week 2		
5		
Reference in APA format		
URL of the Reference	**Authors Names and Emails**	**Keywords in this Reference**
https://www.academia.edu/44649164/THE_DILEMMA_OF_GOOD_TOUCH_AND_B	Neeti Kushwaha	Good, Bad, Touch, Child Sexual Abuse.

AD_TOUCH_AMONG_VISUALLY_IMPAIRED_CHILDREN		
The Name of the Current Solution (Technique/ Method/ Scheme/ Algorithm/ Model/ Tool/ Framework/ ... etc)	**The Goal (Objective) of this Solution & What is the problem that need to be solved**	**What are the components of it?**
The Dilemma of Good Touch and Bad Touch among visually Impaired Children.	Address child sexual abuse awareness and prevention.	It involves multifaceted role of touch in human life, highlighting its importance in maintaining healthy relationships and therapeutic contexts, while also acknowledging its potential for exploitation in cases like child sexual abuse.

The Process (Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process

	Process Steps	Advantage	Disadvantage (Limitation)
1	Importance of Touch	Touch is essential for building emotional bonds and maintaining healthy relationships, promoting a sense of trust and comfort.	Victims, especially visually impaired children, may not realize they've experienced abuse, making it a challenging problem to address.
2	Therapeutic Value		
3	Gradual Manipulation		

4	Perpetrator Familiarity		
5	Lack of Awareness		

Major Impact Factors in this Work

Dependent Variable	Independent Variable	Moderating variable	Mediating (Intervening) variable
Understanding of good touch, bad touch, and awareness of preventing sexual abuse among visually impaired children.	Educational methods and resources for teaching about good touch, bad touch, and preventing sexual abuse.	Support network and involvement of caregivers/educators.	Trust and open communication between visually impaired children and their caregivers/educators.

Relationship Among The Above 4 Variables in This article

The impact of educational methods and resources used to teach visually impaired children about good touch, bad touch, and preventing sexual abuse (independent variable) affects their understanding and awareness (dependent variable). The level of support and involvement from caregivers/educators (moderating variable) can influence this impact. Meanwhile, trust and open communication (mediating variable) play a crucial role in enhancing their comprehension and ability to disclose sensitive issues concerning touch and potential abuse.

Input and Output	Feature of This Solution	Contribution & The Value of This Work

<table>
<tr>
<td>
<table>
<tr><th>Input</th><th>Output</th></tr>
<tr><td>Touch</td><td>Child Sexual Abuse</td></tr>
</table>
</td>
<td>The proposed solution involves raising awareness about the importance of touch in human interactions and the potential for exploitation, particularly in the context of child sexual abuse.</td>
<td>Good to have this knowledge from this paper as we review all the basic algorithms to evaluate touch.</td>
</tr>
<tr><th colspan="2">Positive Impact of this Solution in This Project Domain</th><th>Negative Impact of this Solution in This Project Domain</th></tr>
<tr><td colspan="2">Touch has therapeutic benefits, aiding relaxation, stress relief, and emotional well-being.</td><td>Child Sexual Abuse is often perpetrated by individuals known to the victim, making it harder to detect and report.</td></tr>
<tr><th>Analyse This Work By Critical Thinking</th><th>The Tools That Assessed this Work</th><th>What is the Structure of this Paper</th></tr>
<tr><td>By raising awareness about touch to children they can evaluate good touch and bad touch.</td><td>Parents Teaching their children</td><td>Abstract
I. Introduction
II. Methodology
III. Analysis and Discussion
IV. Conclusion</td></tr>
<tr><th colspan="3">Diagram/Flowchart</th></tr>
<tr><td colspan="3"></td></tr>
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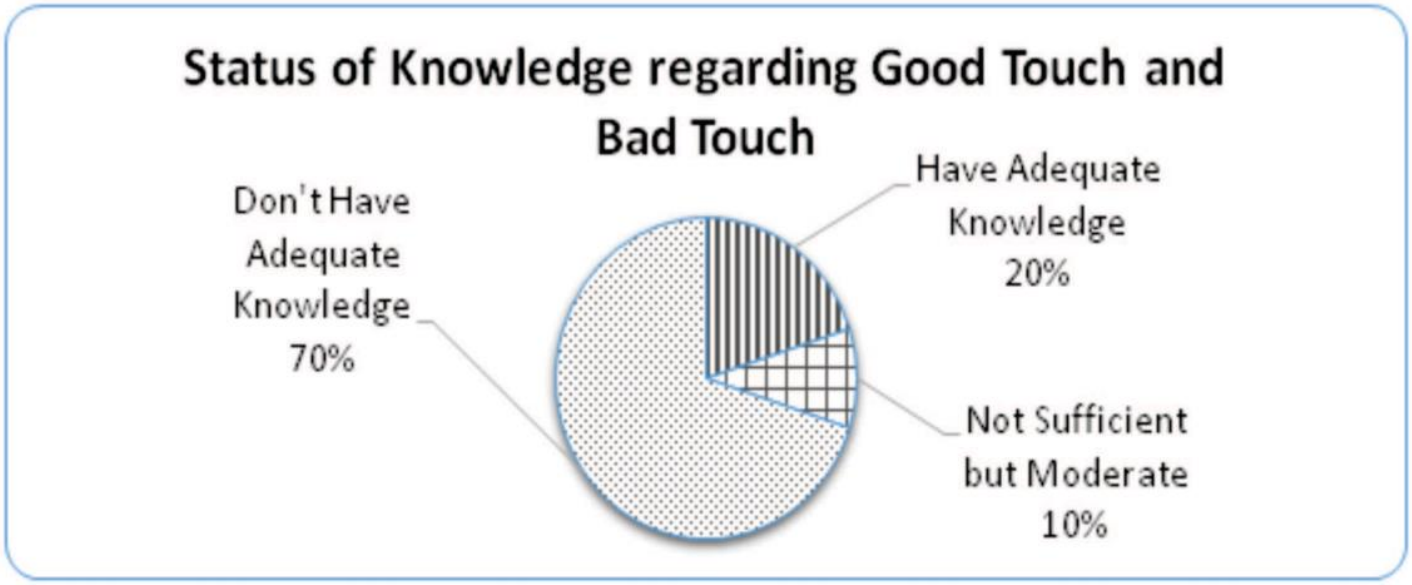

Fig1: Status of Knowledge regarding Good touch and Bad touch among respondents.

--End of Paper 5—