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List of students undertaking project work/ field work/ internship

Academic Year: 2021 – 2022

B.E. ROBOTICS AND AUTOMATION

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1.	712218125002	HARISH R	IV	✓	-	-
2.	712218125003	JEEVA M	IV	✓	-	-
3.	712218125004	MADHUMITHAN J	IV	✓	-	-
4.	712218125005	MANOJ PRABHAKARAN C	IV	✓	-	-
5.	712218125006	MINNU MADHU	IV	✓	-	-
6.	712218125008	PETER PERNANDAS S	IV	✓	-	-
7.	712218125009	POOVASANTHAN A	IV	✓	-	-
8.	712218125010	PRAKASH P	IV	✓	-	-
9.	712218125011	PRAVEEN K	IV	✓	-	-
10.	712218125012	RESHMA AJIKUMAR	IV	✓	-	-
11.	712218125014	SANJEEV KUMAR L K	IV	✓	-	-
12.	712218125016	TAMILARASU S	IV	✓	-	-
13.	712218125017	VIGNESH S	IV	✓	-	-
14.	712218125018	VIJAYAKUMAR C	IV	✓	-	-
15.	712218125019	VIPREETHA ROY K	IV	✓	-	-
16.	712218125021	YOKEESWARAN M	IV	✓	-	-
17.	712218125301	KARAN R	IV	✓	-	-
18.	721118125302	SYED MAHADHIN	IV	✓	-	-

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	712218125003	Jeeva M		
	712218125301	Karan R		
2	712218125004	Madhumithan J	Dr.D.Revathi	Automated Pesticide Sprayer
	712218125006	Minnu Madhu		
	712218125012	Reshma Ajikumar		
	712218125021	Yokeeswaran M		
3	712218125005	Manoj Prabhakaran C	Mr.R.Dinek	Influence of heat treatment in microhardness of wire arc additive manufactured Inconel 625.
	712218125011	Praveen K		
	712218125018	Vijayakumar C		
4	712218125008	Peter Pernandas S	Mr.V.Ragupathy	Design and fabrication of soldering and auto unloading PCB using Cartesian robot.
	712218125009	Poovasanthan A		
	712218125014	Sanjeev Kumar L K		
	712218125019	Vipreetha Roy K		
5	712218125017	Vignesh S	Mr.R.Dinek	Elephant Railway Accident Prevention Using AI
	712218125010	Prakash P		
	712218125016	Tamilarasu S		
	721118125302	Syed Mahadhi N		

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BATCH 1

PARALYZED PATIENTS ASSISTANCE USING AI SYSTEM

PROJECT REPORT

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KARAN.R	- 712218125301

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ABSTRACT

Technology has always lent a helping hand for people with disabilities such as visual impairment, speech impairment, people with motion disabilities or disorders etc. Robotics is a branch of engineering that involves the conception, design, manufacture and operation of robots. Robotics can take on a number of forms. A robot may resemble a human, or it may be in the form of a robotic application, such as robotic process automation (RPA), which simulates how humans engage with software to perform repetitive, rules-based tasks. Disability management is a critical task since it is caused by employing a digital system to assist the physically disabled people. This process is completed by applying a digital signal processing system which takes the analog input from the disabled people by using dedicated hardware with software, and then the raw data is converted it into informative data in the form of digital signal. After converting digital signals, the input processing system classifies the signal and performs the specified tasks, which equates to the prerequisite of the disabled people. In the work, the cognitive based knowledge processing system is designed to get the feedback and improve the tone of the neural schema. The processing system is carried out in four phases: Observing the iris movement, Identification of input operation, Based on the input operation the prediction of task to be performed, Executing the task and produce the output. The system identifies the user input based on their eye contact and generates the notification to the caretaker in terms of voice reporting and message notification.

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CHAPTER - 8

CONCLUSION & FUTURE WORK

Eye movement can be regarded as a pivotal real-time input medium for human-computer communication, which is especially important for people with physical disability. The proposed system focuses on providing a simple and convenient interactive mode by only using user's eye. Based on the face and eye movement, the user input in mouse can be generated and the same is used to generate the notification to the user. In order to provide the high quality system which is employed to help the disabled people there is a requirement to manage the dynamic situations. The processing system is carried out in four phases: Observing the iris movement, Identification of input operation, Based on the input operation the prediction of task to be performed, Executing the task and produce the output and gather the feedback from the user regarding the carrying into action, to improve the cognitive power of the system. Once the input is identified based on their eye contact and it generates the notification to the caretaker in terms of voice reporting and message notification.

In the future, in order to improve the facilities for a paralyzed person , we will improve the system that would help paralyzed people to communicate over the network and exchange information. Another potential direction for future research would be to relax the constraints under which current iris-recognition systems operate. With this in mind, it would be particularly desirable to decrease the required level of operator participation even while increasing the physical distance from which evaluation takes place. If such goals can be achieved, then iris recognition can provide the basis for truly noninvasive biometric assessment. Further, if these enhancements can be had while maintaining compact, efficient, and low-cost implementations, then iris recognition will be well positioned for widespread deployment. An important direction for future efforts is the design and execution of

controlled, large-scale research studies. Only via reference to such studies can the true accuracy of iris recognition be determined for both the verification and identification tasks.

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BATCH 2

AUTOMATED PESTICIDE SPRAYER

A PROJECT REPORT

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ABSTRACT

Main objective of our project is to design an automated pesticide sprayer by using ESP based wireless communicationsystemwhich reducethemanualspraying process for the farmers. Agriculture has a predominant role in our day to day life. Spraying of pesticides is an important task in agriculture for protecting the crops from pests. The conventional methods were person carrying a sprayer and manually actuating a lever to generate and pump the pesticide through a tube or a mobile vehicle carrying an inbuilt compressor and sprayer unit. Another major drawback in human operated systems is that the operator is exposed to the harmful chemicals while spraying which is extremely detrimental to operator's health. Farmers face many problems in spraying of pesticides to crops by carrying heavy tanks on their shoulders. They should spray pesticides to the crops in all seasons irrespective of the weather condition and also requires at least rest of 3-4 days after spraying the pesticide. Pesticide exposure has been linked to the development of Parkinson's disease, asthma, attention deficit and hyperactivity disorder (ADHD), and including leukemia (blood cancer) and non-Hodgkin's lymphoma (lymph cancer). In order to reduce pesticides in agricultural productioncaused by direct contact with the human body injury, and improve the efficiency of agricultural spraying operations, this project proposes the design of intelligent Wi-Fi wireless controlled spraying pesticides robots. The camera captures video, Arduino phones and smart monitoring system operation. The vehicle is powered using an onboard battery powered which runs down the running cost. Besides reducing the cost of spraying, there is a saving on fuel as well. The farmers can do the spraying operation without human interference thus protecting them from noxious chemicals.

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CHAPTER-10
CONCLUSION

In this project, we have implemented a pesticide spraying robot. A robot for use in agriculture An Agrobot is a concept for improving the product's performance and cost, which, once optimized, would show to be useful in agricultural spraying operations. Farmers' workloads are reduced, as are health issues. Successfully constructed a robot that can travel on rough surfaces as well as carry a sufficient load ofcompressor and other equipment. Successful in creating a robot with a strong enough structure to resist the field's challenges. Sure, once this idea is presented in a waythat is appropriate for the Indian market, it willundoubtedly aid in lowering the 15% molality rate found in Indian formers associated with agricultural spraying operations. Projects like this inspire people to pursue agriculture as a full-time or part-time occupation. This is critical in developed countries, particularly India, where agriculture is the economicbackbone.

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BATCH 3

INFLUENCE OF HEAT TREATMENTS IN MICROHARDNESS OF WIRE ARC ADDITIVE MANUFACTURED INCONEL 625

A PROJECT REPORT

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ABSTRACT

Additive manufacturing is a specific 3D printing process. This process builds parts layer by layer by depositing material according to digital 3D design data. Inconel 625 was selected since it is widely available and has been successfully built across the various AM processes and widely researched. Wire Arc Additive Manufacturing (WAAM) is a manufacturing technique which uses arc as a heat source to fuse wire based, layer-by-layer cladding. In the present study Inconel 625 alloy fabricated using Wire Arc Additive Manufacturing (WAAM) has been investigated. The fabricated Inconel 625 alloy and the influence of the heat treatment on the properties of the manufactured specimens were researched. Two different heat treatment process (HT), HT1 860°C with 1hr and HT2 980°C with 1 hr has done. The microhardness values measured at top, middle and bottom side of WAAMed base material, HT1 and HT2 processed materials. The Microhardness value at HT1 increased by 16% and in HT2 increased by 12%. The strength of the material was increased in both HT process than WAAMed base material. The microstructure of as deposited Inconel 625 was mainly composed by columnar grains with fine dendritic substructure.

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CHAPTER 6

6 RESULTS AND DISCUSSION

6.1 CHEMICAL COMPOSITION RESULTS

The Chemical composition result observed using X-ray diffraction method has shown in below table. The observed Chemical composition weight percentage was within the range as actual composition. It is confirmed that there is no other impurities add in observed composition.

Elements	Actual composition, wt.%	Observed Composition, wt.%
Nickel	57-71	57.64
Chromium	21-23	21.24
Iron	5	4.51
Molybdenum	8-10	9.42
Niobium and Tantalum	3.2-3.8	3.52
Carbon	1% max	0.10
Manganese	Less than 1%	0.50
Silicon	Less than 1%	0.48
Phosphorus	Less than 1%	0.015
Sulfur	Less than 1%	0.015
Aluminum		0.40
Titanium		0.40
Cobalt		0.98

Table 6.1 Chemical composition of Inconel 625 Elements Composition

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BATCH 4

DESIGN AND FABRICATION OF SOLDERING AND AUTO UNLOADINGPCB USING CARTESIAN ROBOT

A PROJECT REPORT

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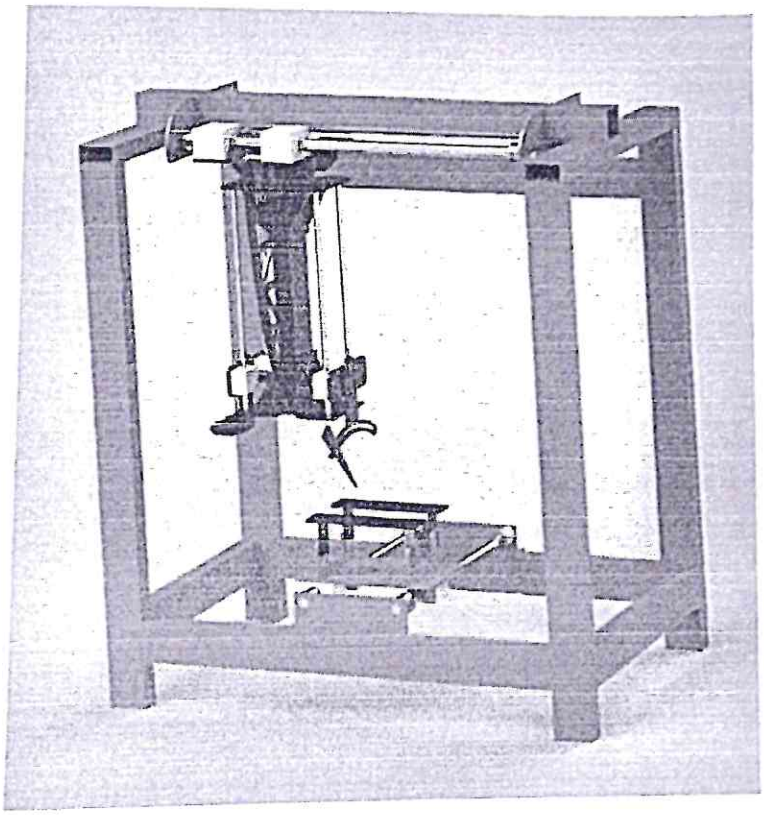
ABSTRACT

Main objective of our project to automate the process of PCB prototype soldering Using low level computing and high-level mechanics.The aim of the project is to manufacture the designed profile by using CNC machine. The profile designed is needed to write a CNC program based on labels, the label mode of program is selected because the programming is too easy even for complicated shapes, CNC's had made revolutionary changes with in the manufacturing sector in before days achieving productivity up to the desired level as not possibilities due to lots of drawbacks like complication of shapes and sizes, lack of skilled labors lots of wastages and scraps due to unexpected mistakes and low quality levels and accuracy. By using CNC this all draw backs can be overcome and this was our small contribution to show the performance of CNC.Initially we got trained about the CNC programming and operations for the period of one month during the training decided to carry our project on CNC, we designed a profile to be manufactured which would be tough to achieve it by conventional machining process and we designed to make use of aluminum material as a work piece of dimension, after the basic selections and decisions the preparation of an program (based on labels) was done and we went for simulation and verified it thoroughly weather the profile achieved by simulation is matching to the designed after lots of

CHAPTER-3

PROPOSED SYSTEM

The development of automated soldering cartesian robot with loading and unloadingto eliminate the other assembly line robot in the factory within the cost of single robot and With Less production cost. we developed this cartesian robot with dual z axis movement whichUp and Down movement for doing the soldering action and pick and place optionThis pick, and place option helps the mass production to run workflow within the time period



CHAPTER -7

CONCLUTION

In this project, we have implemented a cartesian robot for doing job in PCB and pick and place job. This cartesian robot is a concept for improving the product's performance and cost, which once optimized would show to be useful in PCB manufacturing operation. Our project implemented single robot to do two operations within the production cost of single robot. Successful in creating a robot with a strong enough structure to resist the field's challenges. Sure, once this idea is presented in a way that is appropriate for the Indian market. It will be the efficient cartesian robot to do Bi-job action

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BATCH 5

ELEPHANT RAILWAY ACCIDENT PREVENTION USING AI

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ABSTRACT

Animal conservation is imperative, and a lot of technology has been used in different ways. The endangered species like tiger and elephant has raised the need for such efforts. Human-Elephant Collision (HEC) has been an active area of research but still, the optimum solution is not found. As trains are widely used transportation medium in Asian countries, the rail track is even laid down through forest areas and hence intervene the wildlife. Elephants due to their bulky size often become victims of trains. Such tragedy is common especially in green belts in southern zones of India. To rectify the problem, we have proposed an artificial intelligence based model to identify the elephant near-site using implanted video cameras. Four different models are proposed for the identification of elephants in image/video. One novel lightweight CNN based model is proposed. YOLO V5 algorithm has been experimented and tuned for elephant detection. These highly accurate and precise models can alarm the trains hence it can save a precious life.

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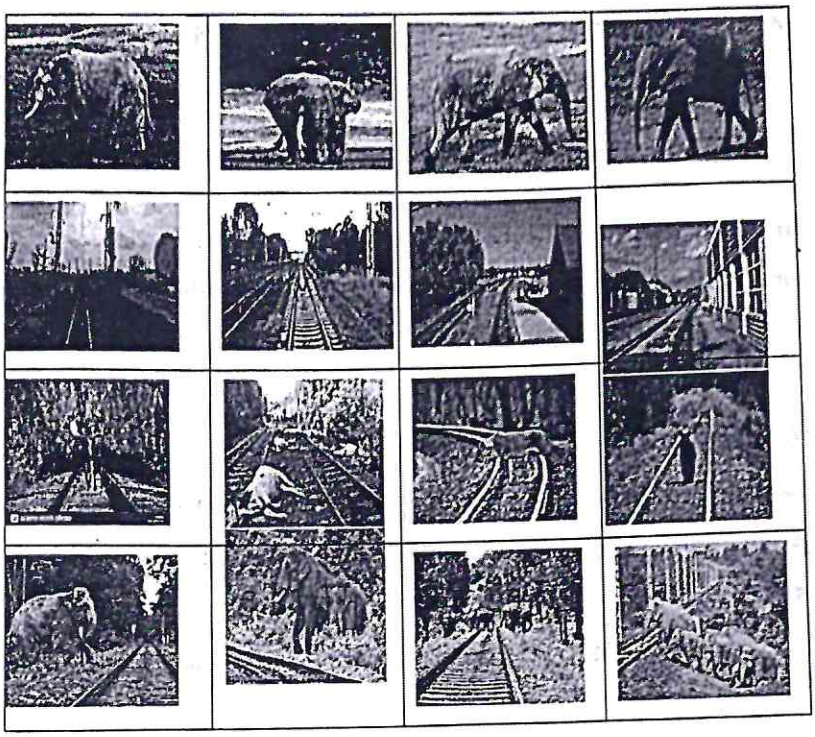

Fig. 1: Sample images used for training and testing

8. CONCLUSION

As human activities had led to intervention in wildlife, its consequences are visible in terms of animal extinction. Nowadays a lot of efforts are being made foranimal conservation and advanced technology cancertainly help in this regard. Artificial Intelligence and the Internet of things together can do a lot in this direction. Along the same lines, this paper aims to develop a model for HEC prevention. It detects theelephants on/near rail track using a deep vision model. One modal based on CNN is proposed and. The YOLO v5 model has performed best for this application because of its high accuracy and zero true negative rates. The model can be used for generatingalarm on-site and in a train near the track for warning andhence saving elephant life. In the future, a detailed dataset can be prepared and trained so that the other type of animals may not be misclassified as elephants and hence can lead to zero false-positive cases.