

# [Abstract:thispaperstrivestodeveloparobotcapableofperformingoperationslikediggingt...](https://assignbuster.com/abstractthispaperstrivestodeveloparobotcapableofperformingoperationslikediggingthesoilandseedsowingthispapergivestheideaofe-yantrarobotwhichisusedfordiggingandsowingseedsprocesse-yantraistheroboticpla/)

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Abstract: Thispaperstrivestodeveloparobotcapableofperformingoperationslikediggingthesoilandseedsowing. ThispapergivestheideaofE-yantrarobotwhichisusedfordiggingandsowingseedsprocess.

E-Yantraistheroboticplatform whichisdesignedanddevelopedbytheIIT, Bombayforlearningandeducationpurpose. Themaincomponentusedinthee-yantrarobotisAVRAtmega2560microcontrollerthatsupervisesandcontroltheentireprocess. Initiallytherobotdigsthesoilandthendispensetheseeds. Thisapplicationworksontheprocessofinternetofthings(IOT). Atpresentmostofthecountriesdonothavetheskilledmanpowerintheagriculturesectorthataffectsthegrowthofthedevelopingcountry. Thefarmershavetoupgradetheirtechnologyfordiggingandsowingseeds.

Thisprocessalsoeliminatestherequirementoflaborsinthefarm. Byusingthisapplicationseedsareprotectedfrom damageandalsogiveshighsowingrate. Keywords: E-yantra, IOT, Atmega2560, diggingandsowingseedI.

IntroductionToday India’s record of progress inagricultureoverthepastfewdecadeshasbeenquiteimpressive. Inthesedaystherearevariousseedsowingmachinesdevelopedbutthereisnosmartnessofworkdone. Manualmethodincludedispensingtheseedsbyhand. Inpreviousdaysdiggingtheholeanddroppingtheseedsbyusingbullocks and tractors are done, which takevarioustime.

Sincetheseprocessrequireslongertimeandhencelargenumberofhumanpowersarerequired foragricultureprocess. Ifskilledhuman powerisnotavailablethen alsoitmaycausesvariousproblemsinseedplantation. Indiais agrarian economies and most of ruralpopulationsdependonagriculturetoearntheirlivelihood.

Agriculture isthe largestlivelihoodprovidedinIndiamostlyintheruralareas. Thefarmersarein need ofseedsforploughing. Theseedsareavailableinpackets manufactureofsuchseed packets. The robotic systems play animmense role in all sections of societies, organizationandindustrialunits.

Theinnovativeideaofthispaperisthatsoilisdigandseedsaresownautomaticallybyusing e-yantra robot so that it reduces thePage| 2humaneffortsandalsoreducesthecost. TheeyantrarobotistheroboticplatformdevelopedbyIITBombaysuchthatvariousapplicationsareperformed in thee-yantramodule. E-yantramoduleconsistsofthreeflavours: Configuration-1: Master: P89v51RD2 Slave: ATmega2560Configuration-2: Master: ATmega2560Slave: ATmega8Configuration-3: Master: LPC2148 Slave: 2xATmega8AmongwhichthispaperworksonATmega2560asamasterconfiguration. Also, thispaperusestheconceptofinternetofthings(IOT). Theprocessistotallyautomatedsothatthereisnoneedofthefarmertovisitthefarmforwork. Theonemaydotheworkfromtheanyplaceintheworld.

Thisprocessisautomatedanddonotcausesthepollutionontheearth. Thistechnologyissafetyforallthelivingbeingsanddonotcausesanyharm. Thesystemisefficientandaccuratetouse. II. Methodology? Programming Software Atmelstudio6. 0AtmelStudioisthenewintegrateddevelopmentenvironment from Atmel.

It provides you amodern and powerfulenvironmentfordoingAVR and ARM development. Get started byexploringthe included example projects. Runyoursolution on a starterorevaluation kit. Program and debug your project with theincludedsimulator, oruseoneofthepowerfulon-chipdebuggingandprogrammingtoolsfromAtmel.

Getproductivewiththevariousnavigate, refactor and intelligence features in theincluded editor. It contains seamlessintegrationwithvariousAtmelWEBserviceslikeAtmel Video Lounge, Atmel Store anddatasheetstokeepyouupdatedandhelpyoutodesign your solutions. With strong extensionpossibilitiesandonlinegallery, itispossibleforbothdesignersand 3rd partytoprovidepluginsandcustomizetheenvironmentforbestuseand productivity.

Atmel Studio carries andintegratestheGCCtoolchainforbothAVRandARM, AtmelSoftwareframework, AVRassemblerandsimulator.? E-yantraModulee -Yantra is the robotic platform which isdesignedanddevelopedbytheIIT, Bombayforlearning and education purpose. It is theadvanced roboticplatform having numberoffunctionalityalreadybuiltinit.

Alongwiththatthereisprovision in thesystem thatonecaninterface the external hardware on it fordifferentapplication.? MajorBuildingBlocksOfRobotTheMajorComponentsneededfordesigningaRobota. Sensors: ForSensingtheenvironments. b. Actuators: ForMovementof robotsand itsparts. c. Control: Controller/ProcessorasbrainofRobot.

d. Intelligence: User Written Command toperformdesiredsetofaction. Page| 3e. Power: Anecessityformakingasystemwork.

f. Communication: Robot can talk to anotherrobot/PC. Fire Bird V ATMEGA2560 technicalspecification? Microcontroller:• Atmel ATMEGA2560 as Mastermicrocontroller (AVR architecturebasedMicrocontroller)• Atmel ATMEGA8 as Slavemicrocontroller (AVR architecturebasedMicrocontroller)? Sensors:• Threewhitelinesensors (extendableto7)• FiveSharpIRrangesensor• EightanalogIRproximitysensors• Two position encoders(extendable tofour)• Batteryvoltagesensing• CurrentSensing(Optional)• FiveUltrasonicRangeSensors(Optional)? Indicators:• 2x16CharactersLCD• BuzzerandIndicatorLEDs? Control:• AutonomousControl• PC asMaster and RobotasSlave inwiredorwirelessmode? Communication:• USBCommunication• WiredRS232(serial)communication• WirelessZigBeeCommunication(2. 4GHZ)• Wi-Ficommunication (ifWi-Fimoduleisinstalled)• Bluetoothcommunication(ifBluetoothwirelessmoduleisinstalled)• Simplexinfraredcommunication(Frominfraredremotetorobot)? Dimensions:• Diameter: 16cm• Height: 8. 5cm• Weight: 1100gms? Power:• 9. 6V Nickel Metal Hydride (NiMH)battery pack and externalAuxiliarypowerfrombatterycharger.

• On Board Battery monitoring andintelligentbatterycharger. Page| 4Fig. e-yantramoduleIII. ConclusionThemainfocusofthissystem isitsAutomatic way of sowing the seeds. Theseedsaresown in apropersequencewhichresultsinpropergerminationofseeds. Thisautomaticwayofsowingseedsusingarobotreduces the labor requirement. Here thewastage of seeds are also reduce to agreaterextent. Thissystem isdevelopedforthesowingofseedsin an automaticway. Herewiththehelpofarobottheseedsaredispensed in thesoilin a propersequenceherebyreducingthewastageofseeds. Theaim of thisprojectistoreduce the manpower, timeandincreasethesowingrate.