Project Report

BE Projects 2011-12

**PROJECT NAME**

**WALL BUILDING ROBOT**

**GUIDE NAME**

**Saurav Shandilya**

**GROUP MEMBERS**

Prasad Borole

Mukeshkumar Choudhary

Pallavi Jain

**COLLEGE: -**

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**INTRODUCTION:**

“Wall building” application would help in the automation of the process of construction.

This project aims at easing the entire process and providing a helping hand to the labourers.

In this, we aim at designing a system with a camera and a robotic machine that will communicate with each other to perform the task of wall building. The ceiling camera will capture the image of the arena and feed the processed co-ordinates to the robot. The robot will then according to the fed co-ordinates, will place the bricks accordingly on the white strip.

Automation of the processes is the need of the hour. Every other process that can be automated is being done so as to ease the process and make it more time efficient.

The main objective of our project is:

* Reduce human effort in the process.
* Avoid the number of accidents that occurs at the construction sites.
* Time efficiency.
* Accuracy of the process.
* Automate the process for ease of operation.

1.4 Problem Statement

The process of construction is a very tedious and risky job. It involves a huge number of human resources and the time consumption is large. Moreover the tasks are full of risks. The number of accidents that take place causes immense loss of lives and property.

We aim to design a system that eases the complications of this process. A robotic machine will reduce a large number of human resources used in the process. Moreover, the number of accidents would be almost reduced to nil and loss of lives and property would be minimum. Also, due to robot use, the time required by the traditional method is reduced and the system becomes time efficient. The particular time cycle used in the system will improve the accuracy of the brick placing as well.

**HARDWARE REQUIREMENTS:-**

|  |  |  |
| --- | --- | --- |
| ***Hardware Requirements*** | | |
| ***Sr.No*** | ***Hardware*** | ***Quantity*** |
| *1* | *FIREBIRD V ATMEGA2560* | *1* |
| *2* | *Robotic arm* | *1* |
| *3* | *ZigBee module* | *2* |
| *4* | *Ceiling camera* | *1* |

**SOFTWARE REQUIREMENTS:-**

|  |  |
| --- | --- |
| ***Sr.No*** | ***Software*** |
| *1* | *AVR STUDIO* |
| *2* | *AVR BOOTLOADER* |
| *3* | *ZigBee drivers* |
| *4* | *MATLAB* |

**COMPONENTS ISSUED FROM LAB:-**

1. FIREBIRD V ATMEGA2560

2. USB WEBCAM (12M)

3. ZIGBEE

**PROJECT UPDATE (TILL 25TH NOV):-**

We have divided the work of our project into parts currently between us.

Two of us are coding for image processing in matlab. We have completed with camera interfacing in matlab then detection of white strips.

One of the member is working on locomotion of the robot.

**Challenges faced:-**

As we are working on matlab and image processing for the first time, we need to first find the steps of how to go to the procedure of image processing so we are taking help of the HELP file provided by the matlab and getting the things done.

**FURTHER WORK PLAN**

Till 22nd December 2011, we are having our sem VII exam. So after that from 23rd December we would be continuing with matlab coding and get it done and also will be done with robot movements.