TECHNICAL PROJECT REPORT

TITLE OF INVENTION / PROJECT:

BLUETOOTH CONTROLLED ROBOTIC ARM

TEAM MEMBERS / INVENTORS:

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Section – 1 (IPR Related)

BRIEF ABSTRACT :

The infrastructure so built makes multitasking possible and more accessible by people with motor difficulties. For example people having difficulty in stability of hand can use the structure so built to overcome the same. It also adds to the comfort of man as he can simply move an object from one place to another at his will making life easier. With improved modifications such as the gesture sensor the user shall only perform a simple predefined gesture to make use of the structure.

The use of Arduino combined with the Bluetooth module and Servos makes all of the above stated possible. The command along with the degree of rotation causes the arm to function in the direction, place as wanted by the user.

With added efforts and time additional modifications to the structure to make it more useful as well as user-friendly. For example adding the Gesture sensor would allow the user to perform an action with a simple gesture. By adding a moving chasis the arm can be made to port from one place to another by its own will which makes the idea and the structure more efficient. Further adding a voice controlled module can allow the user to control the arm from his/her voice. Adding a camera would help the user to enable the arm to recognize the category of objects which come in its way. This way, the user can instruct the arm to pick-up a specific object like a pen in a box or the red flower from a bouquet.

EXISTING STATE-OF-THE-ART AND DRAWBACKS IN EXISTING STATE-OF-THE-ART

S. No.	Existing state of art	Drawbacks in existing state of art
1	Prosthetic Robotic Arms Link- https://www.roboticsbusinessreview.com/legal/robotic_limbs_begin_to_revolutionize_prosthetics/	Materials used to build is very expensive and not affordable by all.
2	Robotic apparatus having mechanical hands Link- https://patents.google.com/patent/US7296835B2/en	Used cables for motion control which is not feasible for distant control

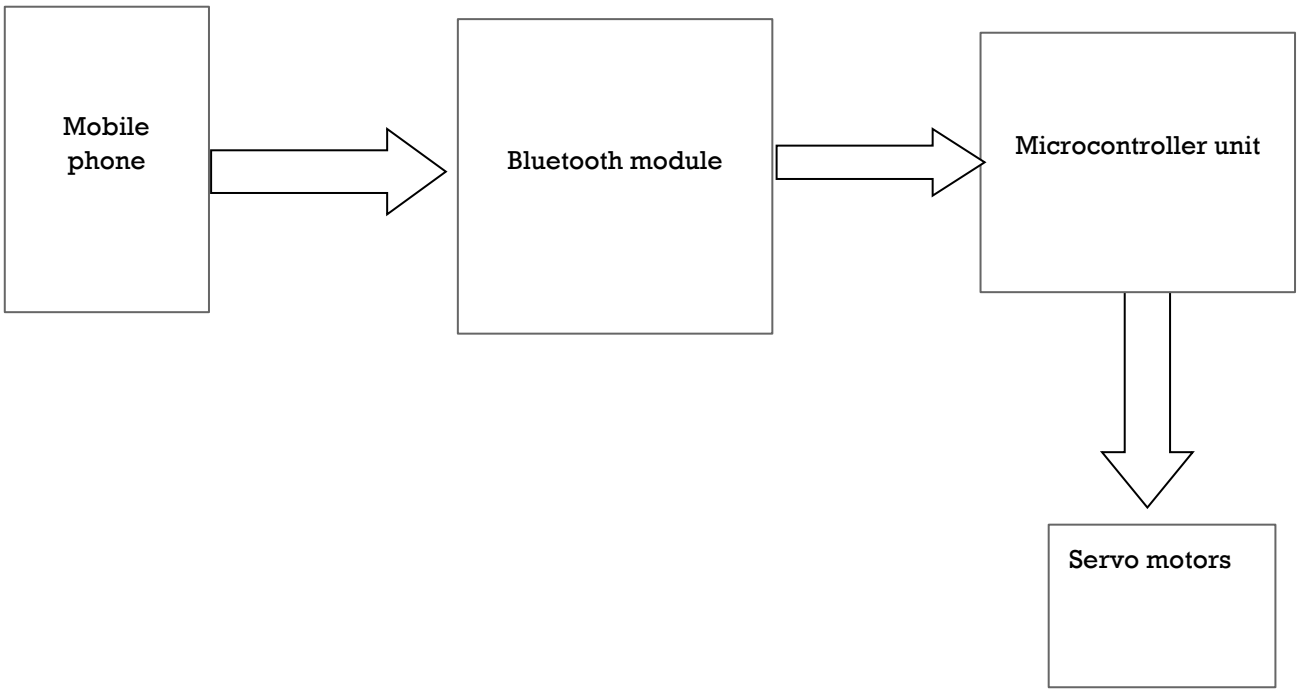
NOVEL/ADDITIONAL MODIFICATIONS THAT YOU CAN PROPOSE TO IMPROVE UPON DRAWBACKS:

- Using sun *board* for building structure.
- Using *Arduino* as the microcontroller.
- Using Bluetooth connectivity for easy control from a certain distance.

Advantages

- Cost reduces significantly.
- Structure integrity is appropriately good judging by the cost.
- Easy to Use.

Block Diagram :



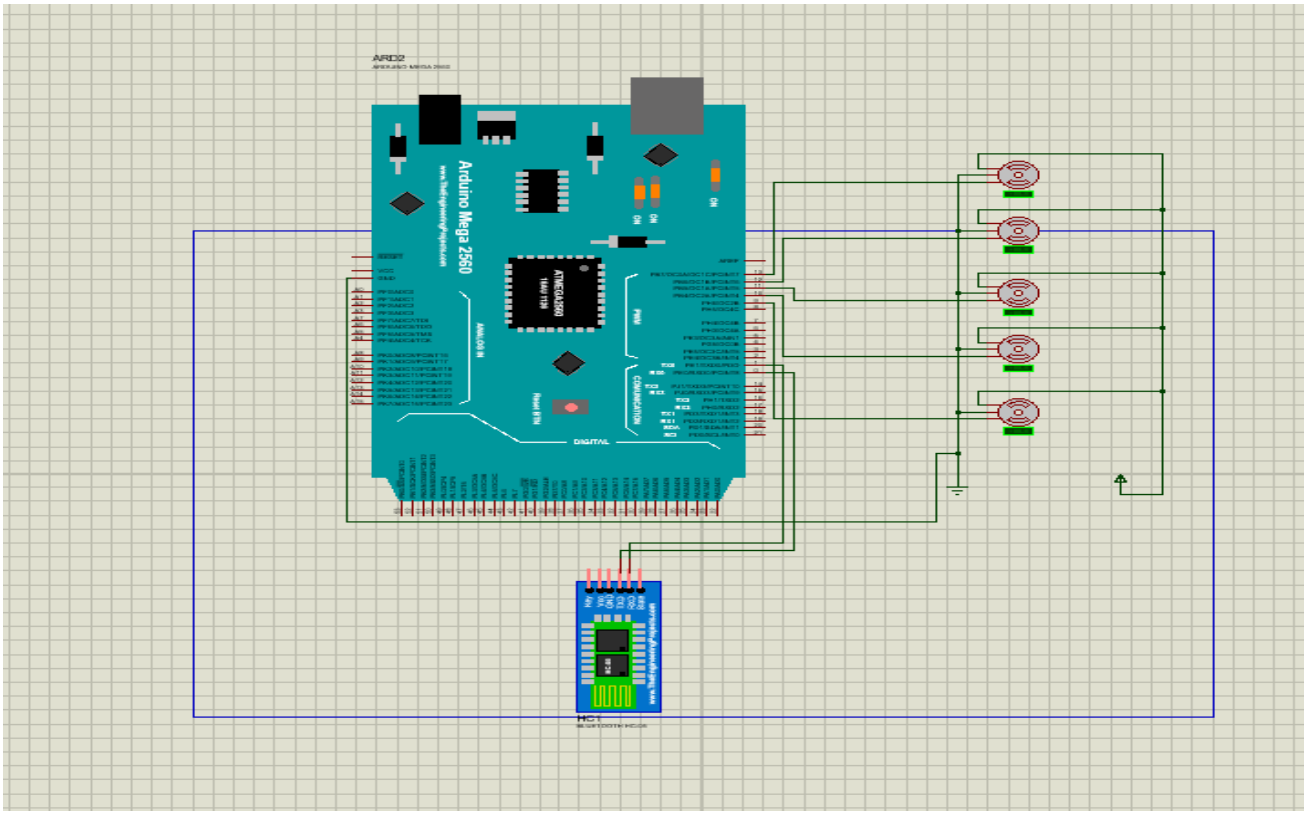
Section – 2 (Real Project)

MATERIALS

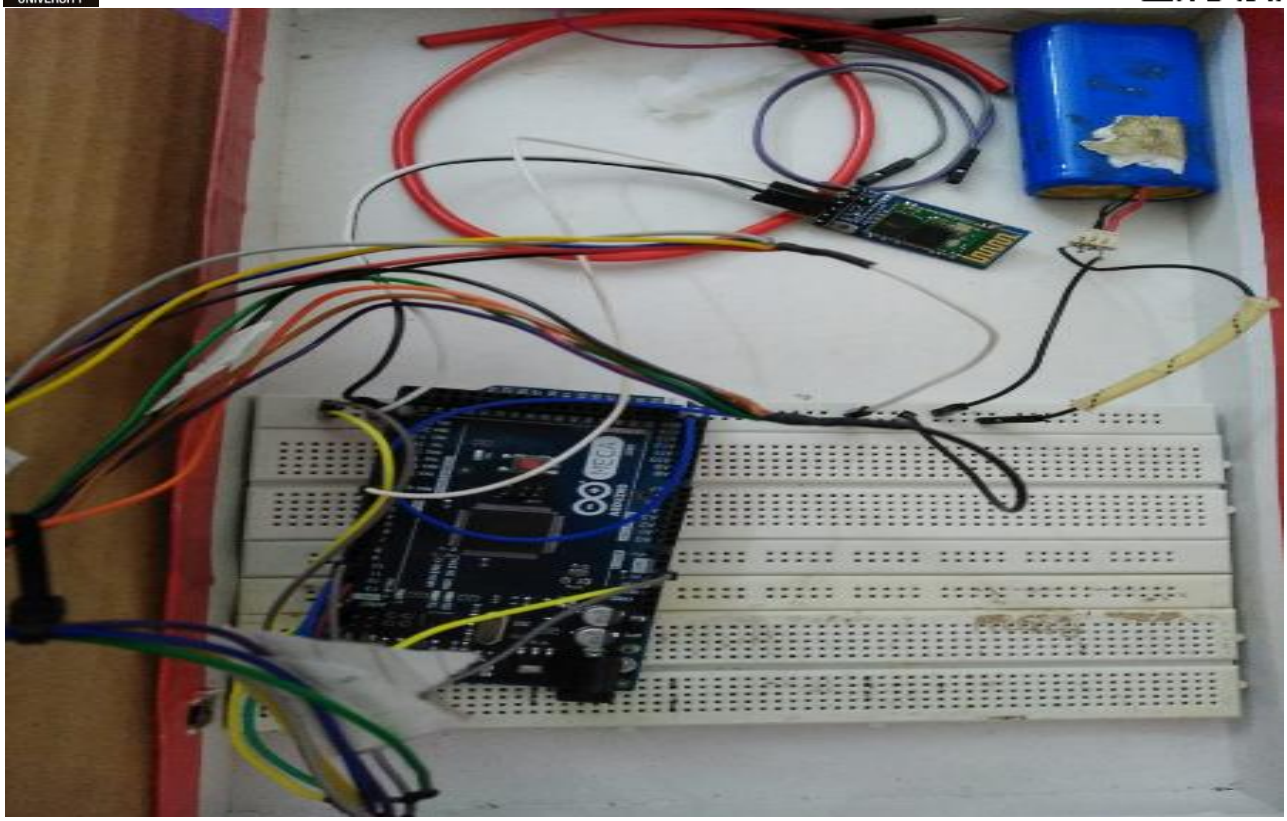
Item	**Quantity**	**Price(In rupees)**
Servos	5	1500
Bluetooth Module(HC-05)	1	350
Robotic Gripper	1	500
Jumper Wires	120	200
Breadboard	1	100
Arduino Mega	1	800

Sunboard	1	120
CardBoard Boxes	1	100
Total	131	3670

CIRCUIT DIAGRAM



STEPS OF CIRCUIT COMPLETION



PROGRAM CODE

https//github.comShubhamS156bluetooth_controlled_robotic_arm