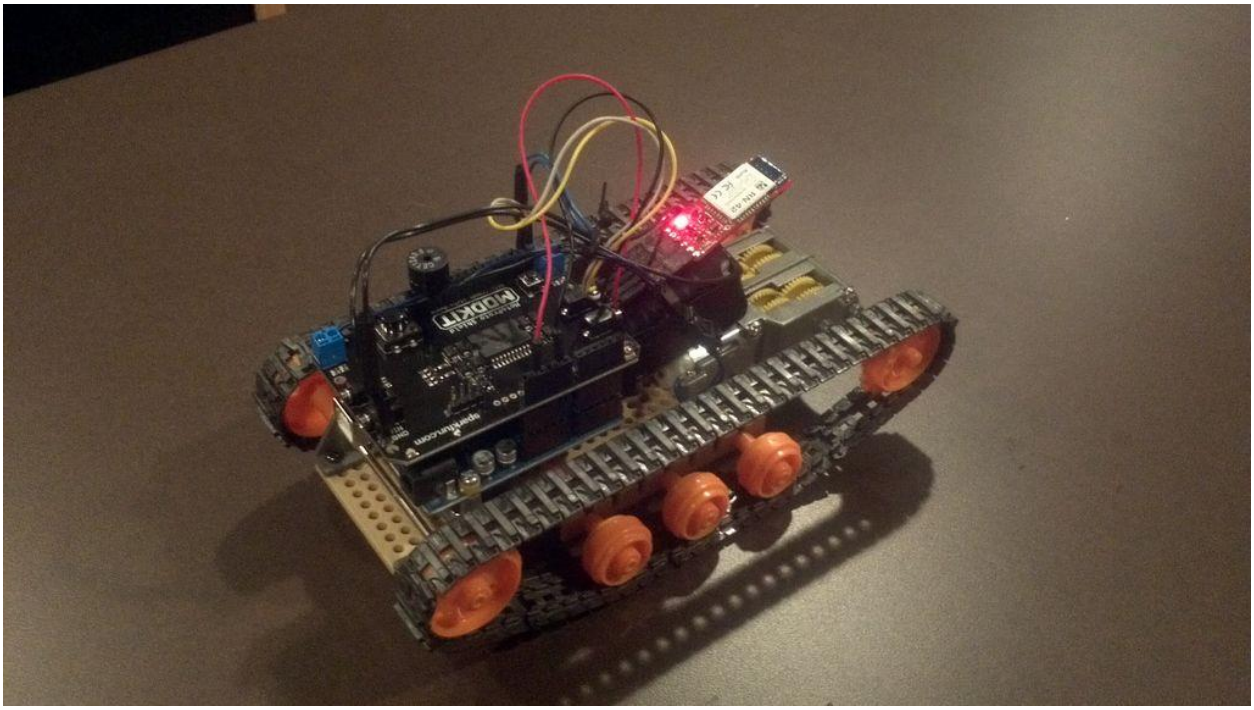
ITSP 2014 – Team Megatron – Project Abstract

Autonomous Battle Tank



(Yeah, something like that :p)

Implementation –

- Week One -

- Primary Aim – To build the basic chassis frame/skeleton of the tank, and create necessary slots for the electronic systems.
  - Also - To learn about Micro-processor Beaglebone Black and other required skills, and probably start coding for the target detection/motion algorithm.

- Week Two –

- Complete the locomotion part of the chassis, i.e. – tracked/belted wheel system.
- Simultaneously work on the shooting mechanism.
- Start working on the wireless systems, camera positioning and turret positioning.

- Week Three –

- Putting the Locomotion, Target Locking and Shooting mechanisms together.
- Carrying out test shots, on particular human made targets.

➢ Week Four –

- Checking for errors in the motion of the tank and correcting them.
- Checking for errors in the targeting and shooting algorithm and correcting them.
- Decorating the tank and giving it the final "Tank" look.

Components required –

COMPONENTS	Approx COST
1. Beaglebone Black	2700 – 3000 rs
2. Webcam	300-400 rs
3. Belted/Tracked Wheels	300rs

4. Servo Motors	150rs
5. 200-300 rpm 12 volt motors	500rs
6. Springs/screws/wires/tape Etc..	Max 500rs.
7. ICs, Resistors and other misc	400-500rs
8. Battery	500-600rs
9. Wireless Module	800-1000rs
10. Lasers for Ranging	200-250 rs

Skills possessed by the Team –

Image Processing(object detection and contour filtering), basic beaglebone API, Java,Android basics,C++

What do we expect to learn from this project –

- To work in a group and associate different tasks to different people and conclusively reach to the final aim.
- Software skills like deep knowledge about Micro-controllers/processors,Image processing etc
- Presentation skills to present whatever project we make.
- To get the basic idea of working on a long tenure project with a group of people.