October, 15-21 Weekly Report

1 Progress

- General folder structure is initialized for the Github repository in order for us to use Github more efficiently.

- Business Statement Report is finalized.

- Members started searching possible solutions for the projects.

- Started working on component. Common components are for all projects prioritized.

- Possible concepts that could be applied for the solution of the "Devices trying to extract the plan of their surroundings" project are:

  - A* Algorithm: A search algorithm that is one of the best and popular technique used in path-finding and graph traversals. This might be used to navigate the robot inside the walls.
  - Wavefront Mapping: A mapping technique that are used in robots to map-out the field they are placed in.
  - Holonomic or Non-Holonomic Motion: Holonomic motion provides the robot to move in any direction immediately. Non-Holonomic motion requires several attempts to move in any direction(like cars).
  - Bumping to objects and walls can be prevented by using sonar distance sensors.
  - Existence of an obstacle can be detected by using IR sensors.

- Possible concepts that could be applied for the solution of the "Devices competing to catch falling balloons" project are:

  - The Arm can be stationary or can be two or even three axis robotic arm
  - The balloon can be caught using a vacuum system at the end of the arm.
  - Or a magnet can be used if the balloons can be covered with magnetic material
  - A top looking camera should be used in order to trace the balloons location as it fell.
  - Image processing should be really fast and accurate

2   Plans

- Define problem, find solution methodology will be used on all project.

- Will be study on common components and basics of how to use them.

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3   Problems

- We were a little late on create problem-solve them step.

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