Progress Since 1st Meeting

Report: Started Laying out the structure of the report

- Chapter Headings
- Title Page - Completed
- Originality Avowal - Completed
- Abstract - Completed
- Contents Page

```
88
89  while running = True:
90      winBids = []
91      ghosts = []
92      ghostPositions = {}
93      ghostDistances = {}
94      ghostsScared = {}
95      scaredTimers = {}
96      for ghost in ghosts:
97          highestBid = min(ghostDistances, key= ghostDistances.get) + min(scaredTimers, key= scaredTimers.get)
```

Coding: Created a github repo for the whole project, including code, papers, past reports

- Created an “AuctionAgent” python file and an “AuctionGhost” class in ghostAgents.py
- Formal Auction Method:
  - Params: List of ghosts, state, num of winning bids (n)
    - Num of winning bids = and int that limits how many active chasing ghosts there are
  - Returns: List of ghosts that won the bid to chase pacman

```
While game is running
      Store states of all ghosts (position, distance from pac, isScared, scared timer)
      Calculate bid size of each ghost based on states
            Closer to pac = higher bid
            If isScared then lower bid
                  The lower the scared timer, the higher the bid
      Return list of highest bidding ghosts of size n
      Highest bidding ghosts chase pacman
      Remaining ghosts patrol a certain area of  interest (maybe with more food / capsules)
```

Current Challenges

Decisions to be made:

- How are the ghosts going to communicate with each other
  - Edit game.py?
  - Create another ‘brain’ class to store ghost state information and relay info to the ghosts (centralised).
  - Decentralised approach may be harder to implement.

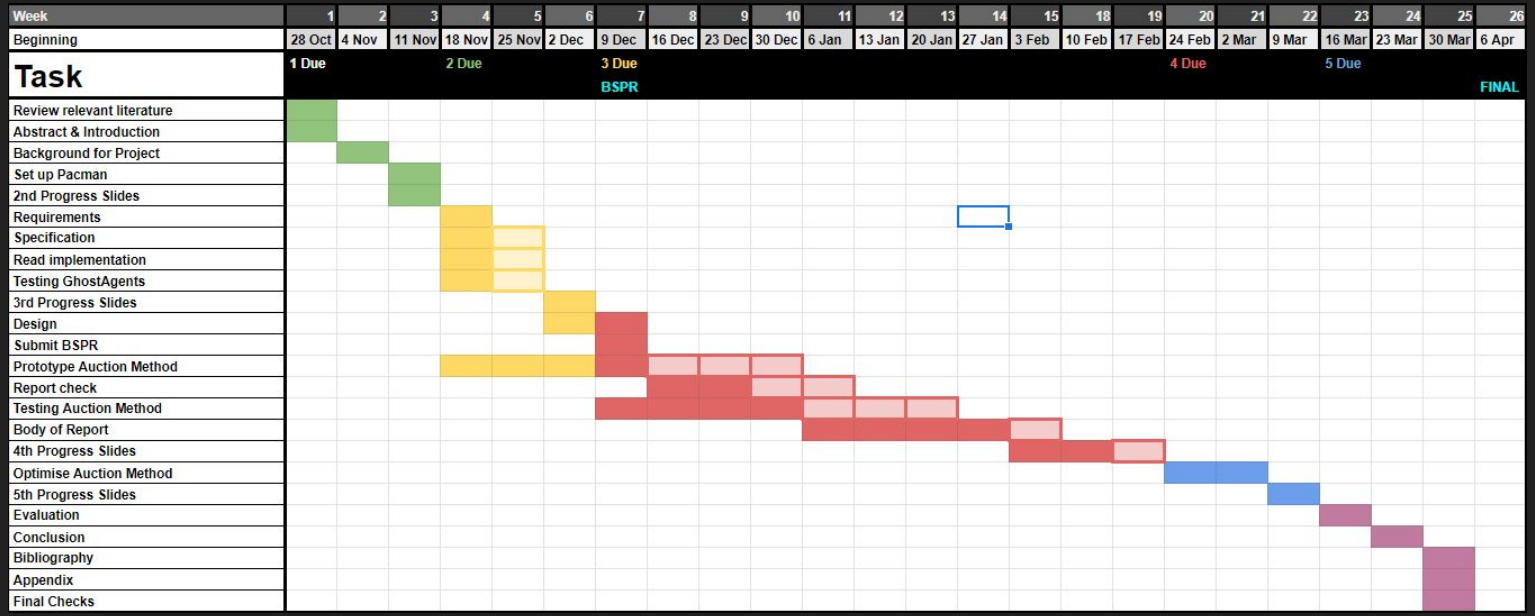
Reading:

- **Read:**
  - Market-Based Multirobot Coordination: A Survey and Analysis.
- **Current:**
  - Market-based Multirobot Coordination for Complex Tasks.
- **To read:**
  - A Survey and Analysis of Multi-Robot Coordination
  - Multi-robot Coordination with Counting Temporal Logics
  - TraderBots: A New Paradigm for Robust and Efficient Multirobot Coordination in Dynamic Environments.
  - Techniques for Multi-Robot Coordination and Navigation - Kai M. Wurm

Future Planning

Overall Planning:

(UPDATED)



Next Steps:

- Read additional papers on Multi-robot Coordination.
- Background research and report write up of Background section.
- Reviewing relevant literature, websites and videos on Multi-robot Coordination
- Work on 3rd Progress slides